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THE USE OF CLOSED CIRCUIT TELEVISION TO IMPROVE TEACHER EFFECTIVENESS.

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AN INSERVICE TEACHER EDUCATION PROJECT UTILIZED CLOSED CIRCUIT TELEVISION AS A MEDIUM OF CLASSROOM OBSERVATION. IT WAS HYPOTHESIZED THAT CLOSED CIRCUIT TELEVISION COULD MAKE STAFF INTERVISITATION MORE EFFECTIVE. CLOSED CIRCUIT TELEVISION WAS USED IN 46 INSERVICE EDUCATION SESSIONS AND 51 SESSIONS WITH OTHER RELATED SCHOOL PURPOSES DURING THE EXPERIMENTAL PERIOD. THE RESEARCH DESIGN WAS ESTABLISHED TO GATHER JUDGMENTS FROM OBSERVERS, TEACHERS, AND TELEVISION PROJECT STAFF. DATA WERE GATHERED BY MEANS OF (1) WRITTEN DESCRIPTIONS AND APPRAISALS BY OBSERVERS AT VIEWING SESSIONS, USING AN OBSERVATION AND EVALUATION SCHEDULE, (2) INTERVIEWS CONDUCTED THROUGHOUT THE DISTRICT WITH PARTICIPATING TEACHERS, USING THE SCHEDULED INTERVIEW PROCEDURE, AND (3) FORMAL EVALUATION DISCUSSIONS WITH THE SUPERVISORY STAFF. THE RESEARCH REPORTED 16 CONCLUSIONS WHICH RANGED FROM EQUIPMENT CONSIDERATIONS TO CRITERIA FOR INSERVICE EDUCATION SESSIONS. (HB)

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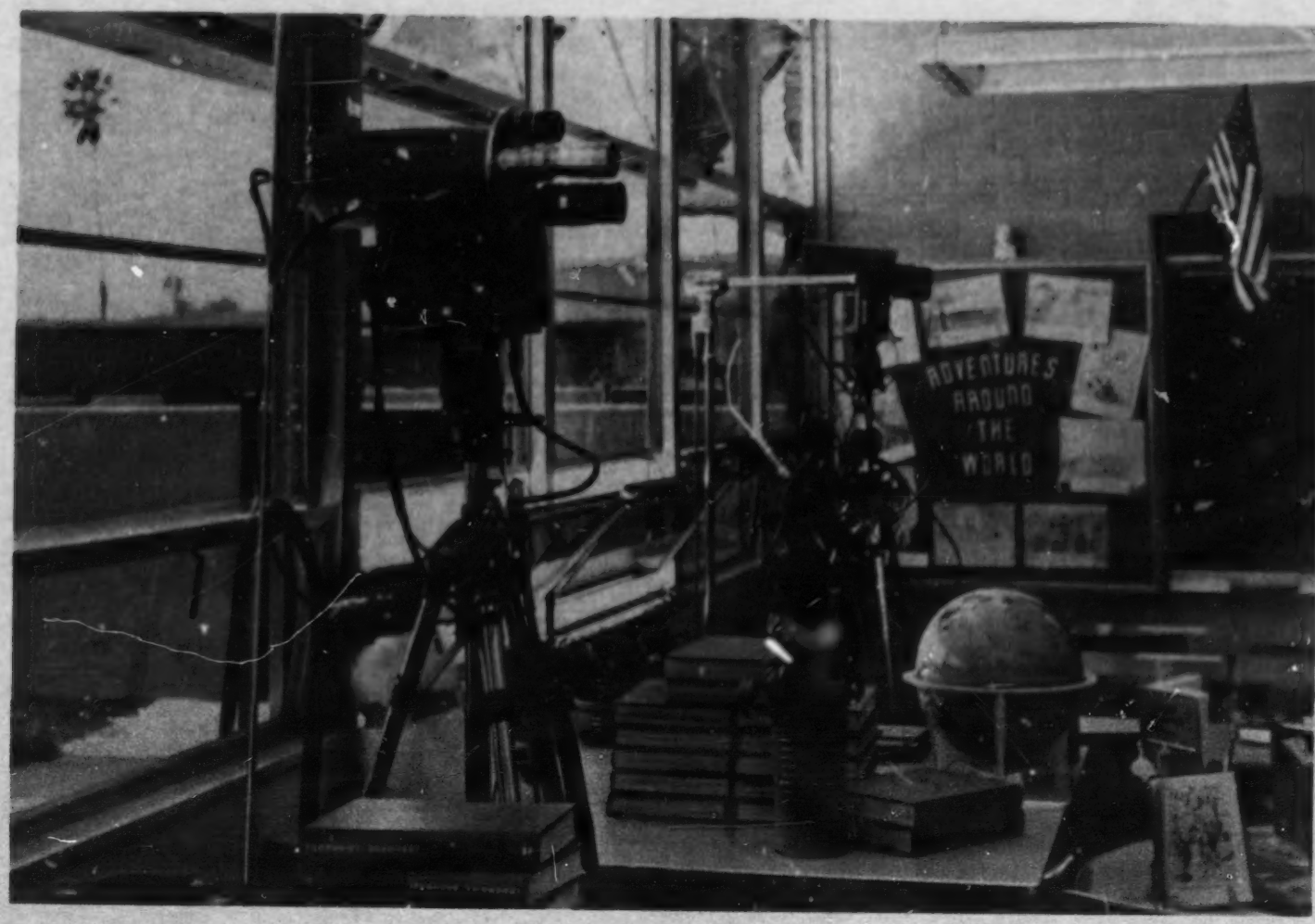
The Use of Closed Circuit Television to Improve Teacher Effectiveness



a research project using closed circuit television
as a medium for classroom observation

Fontana Unified School District
Fontana, California

Sept. 1959 to June 1961

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
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a research project conducted by the
Fontana Unified School District

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Lee Follis, Project Director
Dr. Arthur R. King, Jr., Research Coordinator

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"As viewed over viewed closed circuit television did the classroom seem to be a natural setting?"

"Were the audio and video systems effective in providing
(1) accuracy and completeness of coverage, and
(2) the emotional tones or "feel" of the classroom?"
"Was the format and conduct of the viewing sessions condusive to clear observation and good discussion?"
"Were the closed circuit television viewing sessions a valuable additional medium for in-service education?"

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CHAPTER I

INTRODUCTION AND BACKGROUND OF THE PROJECT

Introduction

This is a report of the in-service teacher education project conducted by the Fontana (California) Unified School District, which utilized remotely controlled closed circuit television equipment as a medium of classroom observation. The project was supported by the Fontana Schools and the United States Office of Education under Title VII of the National Defense Education Act.

The closed circuit television equipment was used as an aid to classroom observation and was part of the regular in-service education program. The planning, equipment procurement, and experimental periods of the project extended from January 1959 to August 1961.

The television equipment was used in 40 sessions designed for teacher in-service education and in 6 sessions designed for the in-service education of administrators, counselors, and other groups In addition, it was used in 51 informal sessions associated with public relations, professional meetings, and college extension classes held in the district.

In Service Education of Teachers in the Contemporary School

The task of the continuous in-service development of the teaching staff is of ever increasing importance to the contemporary school. Several factors seem to be central in making it so.

Teachers today are noted for their state-wide, national and even international mobility, especially in such regions as Southern California. This variety of backgrounds, most decidedly an asset to the school program and to the children served by it, places upon the local school authorities the responsibility for the later phases of the preparation of teachers for their tasks, which inevitably assume some elements of local character. Indeed our decentralization of the control of public education to the local school district assumes that the local integrity will be respected and fostered.

In keeping with the growth of knowledge in all fields, the curriculum of the school is experiencing intensive examination and rapid change in a number of subjects. Most everyone is familiar with the significant and far-reaching impact of curriculum studies in the biological and physical sciences, in mathematics, and in the foreign languages. In addition, curriculum studies in the full range of the school program are being stimulated and directed by

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state departments of education and local school districts, as well as through the significant work directed by professional societies, individuals, and groups within single schools. The basic patterns of curricular organization, (that is, number and length of periods, large and small grouping, etc) school counseling, and other features of the school program are also being re-appraised.

The contemporary demand for "excellence" in matters educational is strongly welcomed. The support, even the demand, of the local communities for increasingly appropriate standards provides the required climate for change in schools. The 1950's and 1960's are decades of intensive school self-examination, as well as the more publicized external criticism, and of change. In-service education programs organized and administered by school districts are being given heavy responsibility for carrying out this change.

Need for Additional Resources for In-Service Education

It is recognized in Fontana and accepted as a working principle of curriculum development that a major source of ideas and warranted experiences lies within members of the teaching staff. A problem in school district in-service programs is that of effective use of this fund of wisdom and experience through the mutual observation, discussion, and appraisal of the materials and instructional procedures used by others. Teaching practices and related teacher-pupil relationships are highly personal and individualized matters and are not readily communicable to others through oral or written descriptions. Recognizing this, most pre-service education programs for teachers and many in-service programs make use of inter-classroom visitation for the purpose of direct observation of a fellow professional engaged in teaching. The effectiveness of this procedure is typically attested to by both teacher and supervisor.

Unfortunately, direct visitation of other classrooms has serious limitations. The presence of visitors, especially a number of visitors, tends to change the normal interpersonal relationships in the classroom with attendant changes in behavior on the part of teacher and pupils. In addition, visitors are usually required to sit in an inconspicuous place in the room, typically in the rear, where they are not able to observe with maximum effectiveness. Of course, notetaking, discussions with other observers, and moving about to observe are disruptive and out of place. The supervisor, consultant or other leader of the visiting group, cannot point up notable features of the classroom or lesson.

Observation of the classroom from an adjoining booth using "one-way" glass has solved some of the problems mentioned above, but, this equipment lacks portability and requires that the demonstrating teacher conduct her class in a special room, a greatly limiting factor if authenticity and naturalness are desired. In addition, observers will be a considerable distance away from many centers of interest in the classroom.

Presumed Strengths of Closed Circuit Television in Educational Observation

The growing record of usefulness of closed circuit television as an aid to observation in industry and in education is well known. Mr. Lee Follis and Superintendent Ferd J. Kiesel, in consultation with other members of the Fontana staff, discussed the possibilities of use of closed circuit television in their ambitious in-service education program. Dr. Kiesel and Mr. Follis had previously participated in a limited classroom observation project in the Mt. Diablo Unified School District of the San Francisco Bay area, using a borrowed industrial closed circuit television system.

Studies were made of the use of closed circuit television in a wide number of educational and industrial applications. The following assumed strengths of closed circuit television as an aid to educational in-service education were developed.

1. Cameras would be portable and could be placed in any classroom or other space of the school district.

2 Cameras could be operated by remote control, leaving observed classroom free of visiting persons.

3 Any number of people could observe simultaneously.

4 A discussion leader could aid in effective observation and subsequent discussion, questioning, evaluation, and generalization of the experience.

5 Requests could be given for camera and sound directions as features of the classroom activity aroused interest.

6. The audio and video equipment would give close-up observation of individuals and small groups within the classroom.

7 The cost of the use of a suitable closed circuit television system including acquisition, maintenance, and personnel would be modest and consistant with its usefulness.

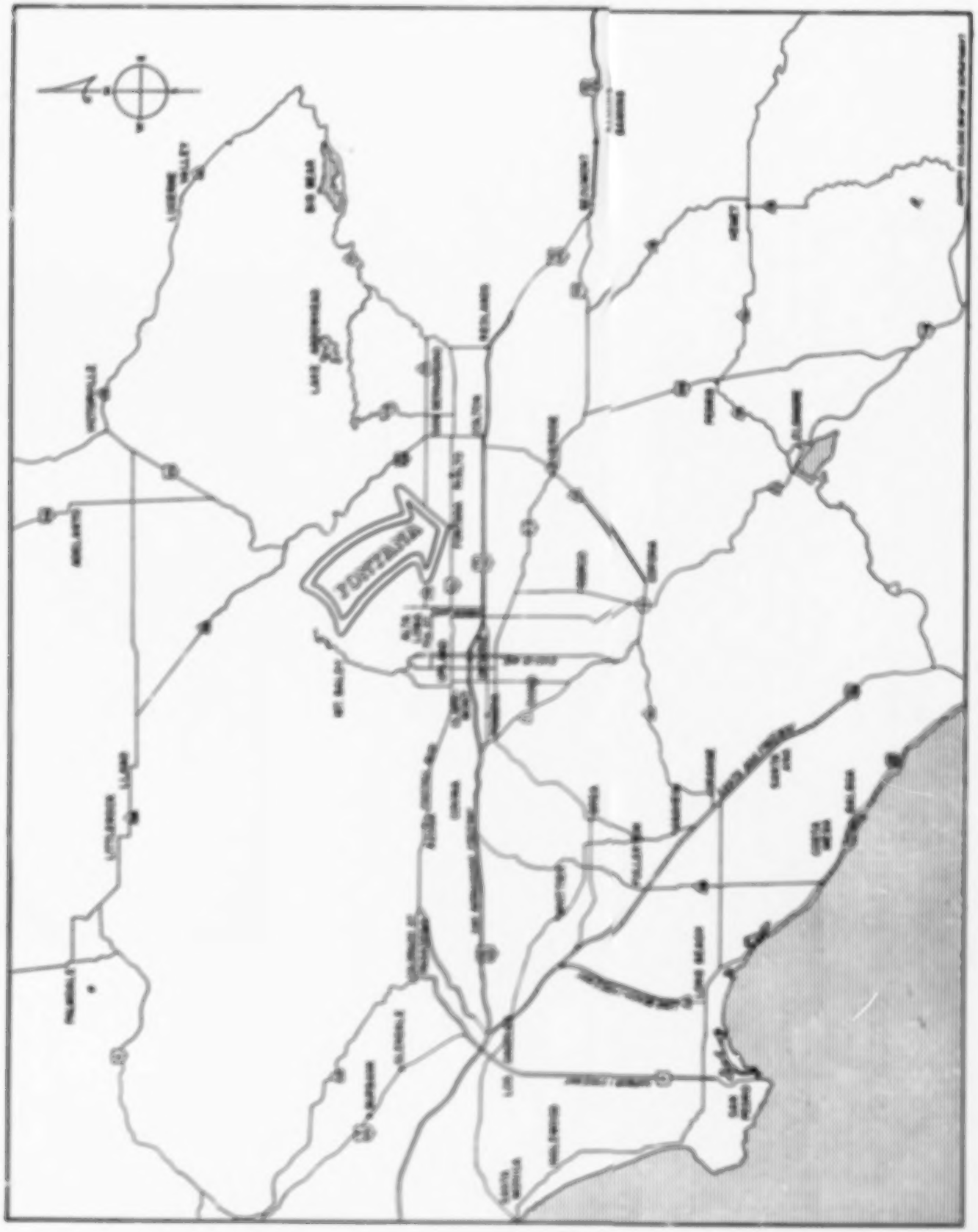
Discussions with state and national specialists in the educational fields and a review of the literature of the field revealed that no uses of closed circuit television for the purpose identified locally were in progress. A few experiments, however, contemplated in the use of closed circuit television for observations in pre-service education (a notable project of this type is located at San Jose State College, California.)

History of the Project

Following the preliminary considerations discussed above, Mr. Follis presented to the Superintendent and other members of the administrative/supervisory staff a preliminary proposal to use closed circuit television to support the extensive in-service education program underway in the school district. It was further proposed that a request be made for a research grant to the United States Office of Education under Title VII of the National Defense Education Act.

Further refinements were made in the proposal and it was approved by administrative authorities and submitted on March 25, 1959. On May 16,1959 notification was received that the grant had been approved: on July 21 Dr. Walter Stone of the United States Office of Education staff visited Fontana to negotiate the contract: on September 10 the final approvals were received and the project began formally on September 17, 1959.

Equipment specifications were drawn up around the requirements for a portable, remote system that would operate in a normal classroom atmosphere. Bids were let, the contract awarded, and assembly of the system was accomplished during February and March of 1960. Trials were begun immediately and the first planned project began April 4. The period of experimentation extended from April 4, 1960 until May 24, 1961.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CHAPTER II

DESCRIPTION OF THE CLOSED CIRCUIT TELEVISION PROJECT

Fontana, California-The Setting of the Study

The Fontana Unified School District of Fontana, California, is markedly affected by the trends in curriculum and personnel selection mentioned above. It is experiencing the explosive growth in common with regions of in-migration such as Southern California, and actively recruits its teachers and other professional personnel nation-wide.

The Fontana Schools are sensitive to nation-wide curricular trends and stimulated by the opportunity to build curricula consistent with the best local and national studies. The school district has had in recent years an active in-service teacher education program, both within individual schools and district-wide; this program with its goals and characteristics are described in some detail later in this report.

Fontana, California, is a community of almost 50,000 centered around an incorporated city of 17,000. It is 50 miles east of Los Angeles at the foot of Cajon Pass, a major byway from Southern California to all eastern points. Fontana overlaps two major highways and has two major railroads passing through its boundaries.

Located on a semi-arid plain, the area has an agricultural history dating from 1905, which has included such features as the Fontana Farms Company, a large agricultural holding: extensive citrus groves; one of the world's largest hog farms; and a large poultry industry. Although agricultural production has diminished steadily, elements of the citrus and poultry holdings are still in existence.

Fontana's present era began in 1942 when the Kaiser Industries located the first steel mill west of the Mississippi River at the city's western edge. The mill presently employs about 7,000 persons, including a wide variety of industrial specialists. Its presence within the district has contributed to the property evaluation and has helped keep the local school district at about the median level in financial status in California. The city of Fontana was incorporated in 1952 and has experienced continued growth. Today it has a new civic center and several modern shopping areas that are attracting more commercial businesses to the area. Civic pride is continuing to grow and cultural activities are increasing in number and variety and in their support by the people.

The Fontana Unified School District

In 1956 the Fontana Elementary School District and the portion of the Chaffey Union High School District coterminous with the boundaries of the elementary district formed a unified school district with responsibility for the educational program from grades kindergarten through high school. Fontana remains in the Chaffey Junior College District. At the time of unification in 1956, the enrollment was 5698 in all grades. Enrollment has grown to approximately 10,000 pupils at the time of this report, with further growth anticipated at an average growth rate of 4 percent per year. Fontana has ten elementary schools, three junior high schools, one senior high school, and one special school for severly retarded children. The district is organized on the K 6-3-3 plan, having made the transition from K-6-2-4 plan in 1958.

Fontana Administrative and Supervisory Personnel

The recent history of the Fontana Schools, including the period covered by the closed circuit television project described in this report, has been characterized by change in all aspects of the school program including leadership personnel in administration and supervision. The promotion of key persons to new positions within and without the district has been extensive.

Prior to district unification in 1956, the curriculum staff consisted of two Elementary Consultants. The unified district curriculum staff consists of an Assistant Superintendent-Instruction, Dr. Denzil E. Widel, two elementary Consultants, a Secondary Consultant, a Director of Guidance, and a Director of Instructional Materials. During the period of the project, Dr. Widel was on leave with the International Cooperation Administration and his staff worked directly under the Superintendent.

Dr Ferd J. Kiesel, first Superintendent of the newly formed Fontana Unified School District in 1956, stimulated and guided the development of the project from its early inception to the start of the project in January, 1960. Dr Kiesel left Fontana to assume the superintendency of a large school district in Northern California. Dr J. Roland Ingraham, Jr. assumed the superintendency in January, 1960 and continued the top administrative leadership.

A list of personnel who served in administrative and supervisory positions during the planning and operational stages of the project is included as Appendix A.

In-Service Education and Curriculum Development Programs

During the period of rapid growth, modernized district organization, and changing leadership personnel, the Fontana schools have engaged in serious and continuous curriculum study. Beginning in 1956, planned sequences of study were developed for all grades in most subjects, including several National Defense Education Act projects. Areas where intensive work has been undertaken include:

Arithmetic - Elementary
Reading - Elementary and Secondary
Child Study
Kindergarten Program
Primary Reading - Writing
Art
Arts and Crafts related to Social Studies
Music - Elementary
Multigrade Grouping in Elementary School
Mentally Retarded - Instructional Method
English - Secondary
Social Studies - Secondary
Mathematics - Secondary
Homemaking - Secondary
Physical Education - Elementary
Gifted Child - Elementary and Secondary

During 1960, curriculum guides in all elementary subjects fields and course outlines for all secondary subjects were edited and printed.

The in-service education program in the Fontana schools is defined as the means by which educational personnel improve their knowledge and skill in the performance of their jobs. It is assumed that each individual teacher is fundamentally responsible, as a professional person, for his own in-service development. Such opportunities as the following are available in the region and are widely used by individuals: graduate courses at a number of colleges and universities; professional associations including branches in Southern California; graduate research projects; individual study using the libraries of the nearby universities, as well as the professional library of the school district; and informal study and discussions with colleagues.

It is thought wise in most school districts, and Fontana is among them, to supplement these individual efforts with a well planned and staffed school district in-service education program.

ADOPTED FROM STATEMENT ON IN-SERVICE EDUCATION IN FONTANA, DEVELOPED IN DECEMBER 1959 BY THE STEERING COMMITTEE ON EDUCATIONAL TELEVISION.

The Fontana in-service program is charged with the responsibility of bringing the school program to the highest possible level of excellence. The following types of curriculum development and in-service education practices are continually underway:

1. Formulating and reformulating the goals of education.

2. Defining fields of study, both for general education and for special groups of pupils.

3 Studying the individual and group character of the children and youth in Fontana.

4. Organizing these fields of study into sequences (developing courses of study and curriculum guides.)

5. Selecting material - books, films, and others.

6. Orienting new personnel to the local program.

7 Evaluating the effectiveness of instruction, both informally and formally, as in follow-up studies and accreditation.

8. Studying curricular questions and problems, reforming the sequences of instruction as required.

9. Sharing teacher knowledge and procedures.

Priority tasks for the in-service program and the scheduling is accomplished in Fontana by the Superintendent in consultation with other personnel in the school district. The principals, with special responsibility for their own schools, and the central office personnel, as assigned by the Superintendent, carry out the program.

Facilities for In-Service Education

Special purpose facilities for in-service education in existence prior to the closed circuit television project centered about a Curriculum Laboratory, located in a newly constructed central district office facility. The laboratory features spaces for curriculum workshops; materials and equipment for construction of teaching aids; textbook, supplementary book and professional libraries; audio-visual pre-viewing and distribution facilities; and office consulting spaces for consultant personnel. Teachers' work rooms are located in all schools in the district.

Organization for Closed Circuit Television Experiment

The task of advising on the selection of those in-service education projects in which closed circuit television was used was carried out by the Steering Committee on closed circuit television. The membership consisted of the Superintendent, the Project Director, three district Consultants in Curriculum and Guidance, five administrators, one Secondary Teacher, and the Research Coordinator. The Steering Committee met weekly during the initial months of the project and occasionally throughout the duration of the experimental period.

The following personnel served as members of the television project Steering Committee:

Dr. Ferd J. Kiesel, Superintendent - replaced by Dr. J. Roland Ingraham, Jr.

Lee Follis, Director of Instructional Material and Project Director

Hugh Sterling, Secondary Consultant - replaced by Robert O. Sprague

Bethene Velman, Elementary Consultant

Dr Russell Cassel - School Psychologist - until July, 1960

W. Deane Wiley, Junior High School Principal and High School Principal

Ernest Camfield, High School Principal and Assistant Superintendent-Special Services

W. Lloyd Johns, Junior High School Principal

Randolph Saugstad, Elementary School Principal

Walter Stoltze, Elementary School Principal

William Cawlfied, High School Teacher

Dr. Arthur R. King, Jr., Research Coordinator

Each in-service task requiring the use of the closed circuit television equipment was designated a "CCTV Project," with a "Project Leader" in charge. The Project Leader, (typically a principal or consultant) was held responsible for planning the entire in-service "project," whether it required one viewing session or a series of them.

The Steering Committee established the following criteria for a suitable closed circuit television in-service education project:

Criteria which apply to all in-service projects.

1. Has educational merit.

2 Is accepted by personnel concerned.

3 Is approved as in keeping with school district policy.

4. Has high priority in contrast to other possible projects.

Criteria which apply to projects using closed circuit television

5. Is amenable to the research design of the closed circuit television project.

6. Demonstrates promise of using the assumed strengths of the closed circuit television medium.

Once approval as a closed circuit project was given, the Project Leader made all necessary arrangements for time, space, release of teachers and equipment, including closed circuit television equipment. Upon receipt of the outlined in-service project, the Project Director scheduled the equipment and operating personnel and appointed a "Project Evaluator," who was responsible for carrying out the evaluation phase of the project. His task is to be discussed later in this report.

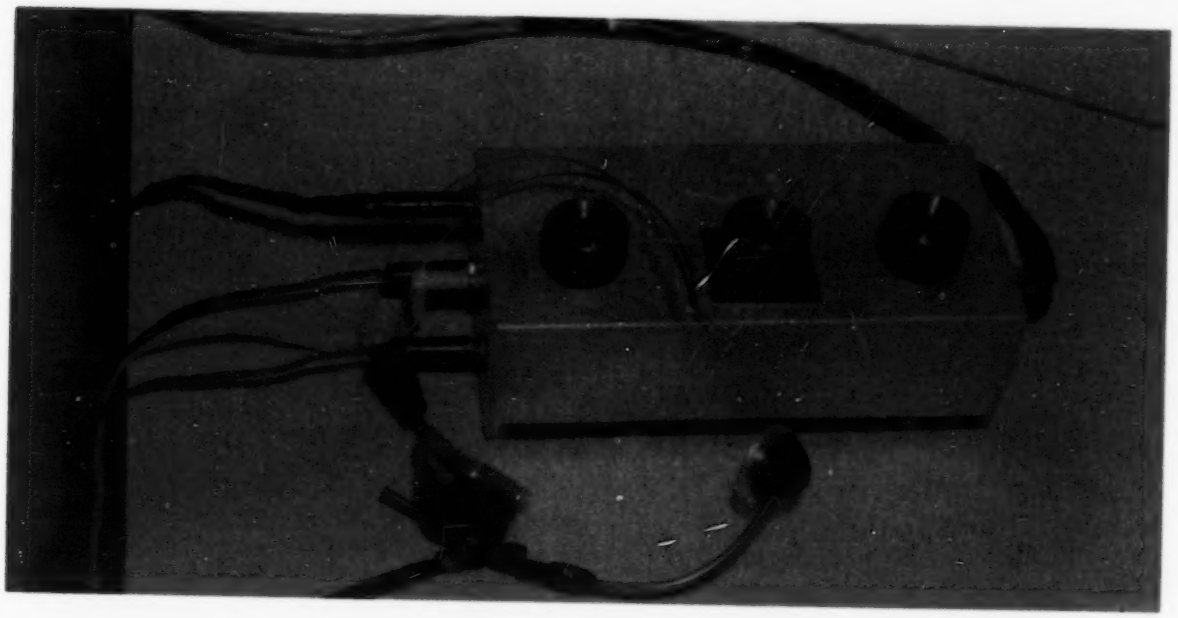
Equipment Selection and Operation

It was decided early in the planning to purchase the equipment with the possibility of expansion into broadcast, hence, it was felt that it would be economical to obtain equipment that met EIA broadcast specifications. With the educational television frontier rapidly expanding, compatibility with quality broadcast equipment is a necessity in order to be ready for continuing development without obsolescence. Remote operation was planned to give full control without operating personnel being in the observed classroom. A completely portable system was planned to make it possible to use a wide variety of classrooms as observation rooms.

Many months were spent in equipment selection. This investigation and evaluation of equipment was made by the Project Director with the assistance of two radar and television specialists. These men investigated the specifications submitted by eight bidding firms. All systems but two were observed in operation. The General Electric system was chosen as the one that appeared to best meet the established selection criteria.

The entire system was operated as a video system, in contrast to a radio frequency (rf) system, in order to maintain maximum resolution. The transmission distances involved did not require rf transmission.

The three audio channels were transmitted from the control center at a constant output level. The ultimate listening level is controlled at an audio control center in the viewing room by the Project Director or on occasion by the Discussion Leader. This

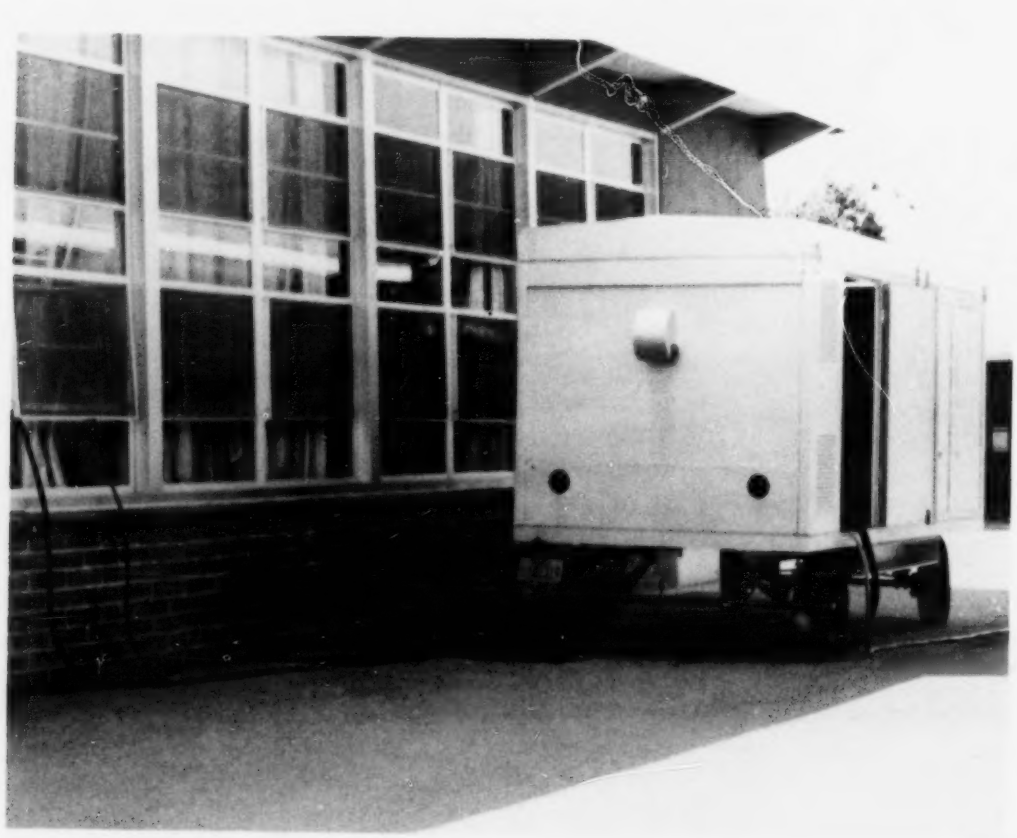


has proven to be the most satisfactory as it allows immediate changes in desired listening levels, especially important when it is desirable to make a comment, to follow a certain activity closely, or completely cut the sound in order to carry on discussion. Also of vital importance is the intercommunication system between the viewing room and the control center. Desired coverage and specific directions were relayed to the operator by the Project Director as he observed the viewing session and accompanying discussion.

The control center was housed in a van type, four wheel trailer which is towed by a panel truck. The trailer and truck were purchased from California State Education Surplus and rebuilt to local specifications. Louvered panels were replaced with solid panels; seams were caulked; ventilation fans, lights, and a door were installed; small wheels were replaced with regular automobile wheels; electric trailer brakes and regulation running lights were installed.

These facilities have proven very satisfactory. The trailer can be positioned and connected, and still leave the truck for necessary transportation as well as additional hauling space. Additional facilities such as cable reels for easier cable intake and an adequate air conditioner would be advantages, but are not deemed absolutely necessary.

A listing of the specialized closed circuit television equipment used in the Fontana Project is included as Appendix B.



Operating Procedures

The set-up procedure for the completely portable system begins with the physical location of the van trailer control center. It is placed in the vicinity of the observed classroom, as the camera input and control cables are the heaviest and most costly. The trailer is usually located just out of view of the students in the classroom and the input cables brought in through a convenient window.

The cameras are normally placed near the window wall in order to train the cameras away from bright light spots. Camera placement varys with the needs of the planned observation program. Microphone placement is also dictated by the type of observation.

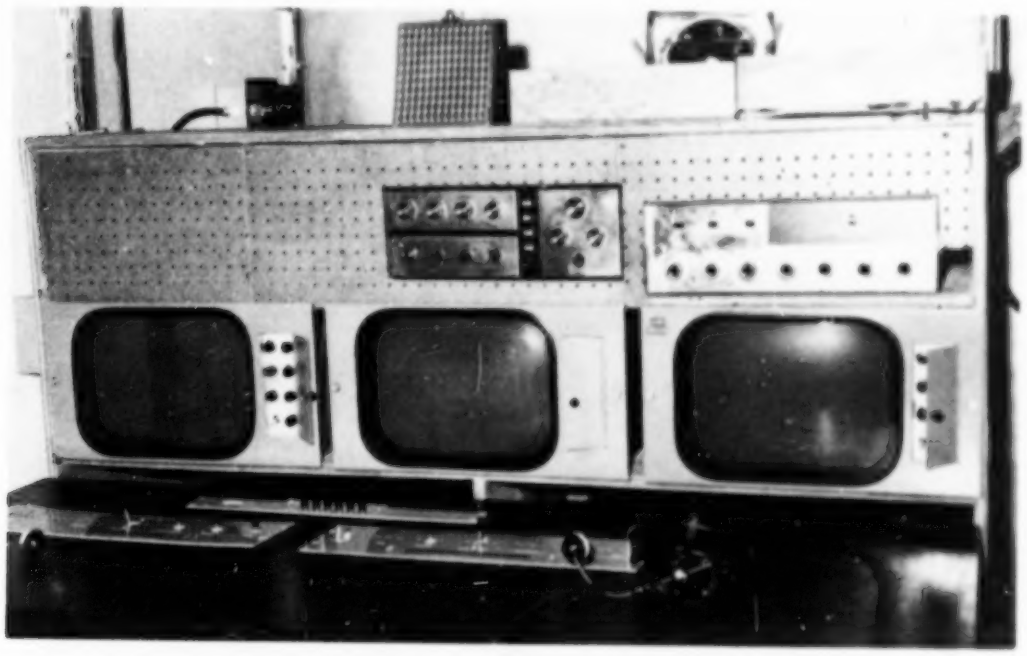
The input cable, 100 feet in length, is bundled in one large vinyl zippered jacket. At the camera end of this cable, the two groups split into a "Y." Each branch connects to its respective camera. All microphone inputs, power outlets; control connections, and video coaxial cable are in this cable bundle.

The output cable, also grouped and bundled in a vinyl jacket and stored like fire hose in a rear section of the trailer, is payed out from that point to the viewing room. The present maximum is 300 feet, but could be extended to 1000 feet, if needed, without reamplification. This output cable consists of a single video cable, three audio output cables, and an intercom line.

All connections are made with locking, multiple pin, connectors. The coaxial cables are connected with standard coax connectors for RG11/U cable. All cables are left permanently connected at the control center.

Power requirements for the operation of the three monitors, three amplifiers, intercom power supply, camera power, and trailer ventilation fans were supplied through a single power cable. This was connected to a standard 110 volt power outlet with a standard circuit breaker. No supplementary power has ever been required.

The room most typically used for viewing was the school staff lounge. Occasionally other classrooms and multi-use rooms (auditorium, cafeteria, and other) were used. Two viewing monitors were sufficient in a majority of the viewing situations, with four monitors being available for large audiences.



CALIFORNIA STATE MATHEMATICS CONFERENCE
Claremont, California

Closed Circuit Television Operating Staff

Project Director

- Directs the entire project
- Works with Project Leaders in coordination of the television with the in-service project
- Works with Steering Committee in over-all planning
- Works with Research Coordinator in evaluation
- Directs equipment set-up and take-down
- During viewing, operates audio controls and relays camera direction to Operation Technician

Research Coordinator

- Works with television Steering Committee in planning and evaluation phases of project
- Works with Project Director in carrying out evaluation program

Secretary

- Works under direction of Project Director in preparation of committee reports, preparation and compilation of observers' reports, correspondence with interested parties and preparation of evaluation reports

Operation Technician

- Handles all equipment movement and set-up
- Operates all remote camera controls during observation sessions

Maintenance Technician

- Keeps equipment in operating condition

Time devoted to project operation is extremely variable and is dependent upon the frequency of use and the frequency of change of location. The operation of the entire project was only a part of the working assignment of all personnel. An estimate of personnel time required for operation of this system based on an average of three 30 to 45 minute observations a week is as follows:[2]

Staff Member	Proportion of Total Time Required	Amount of Time Required per Week
Director	10%	5 Hours—With a competent, well trained technician, this is little more than actual observation time and planning time with Consultant (Project Leader) and Teacher
Operations Technician	25%	9 or 10 Hours
Maintenance Technician	2%	Approximately 1 Hour per Week (The equipment proved to be very reliable)

A large part of the work of the Operation Technician, when on project work, was devoted to moving and setting up the equipment. It has been found that he can drive into a school plant, locate the trailer, set-up equipment in observation room, lay cables to observation and viewing room, make all connections, and be ready to begin observation in an average time of forty minutes. The only help needed, typically supplied by a school custodian, is in unloading the viewing monitors.

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[2] THIS IS OFFERED ONLY AS A BASE FOR ESTIMATING TIME. FOR A MODERATE SIZED DISTRICT WITH A SMALL CURRICULUM STAFF AND COMPARATIVELY SMALL TEACHING STAFF, THIS FREQUENCY OF ACTIVE PROJECTS COULD NOT BE MAINTAINED. IT IS DOUBTFUL THAT A BUSY TEACHING STAFF COULD KEEP THIS PACE ALONG WITH THE MANY OTHER PROFESSIONAL DUTIES.

CHAPTER III

RESEARCH DESIGN

Experimental conditions Governing the Research Design

The experimental design of all investigations is dictated by the nature of the questions being investigated and the nature of the field in which the investigation takes place. The present study presents a number of such governing conditions.

This study concerns the effectiveness of an additional medium, that of closed circuit television to the total in-service education program of the Fontana schools. Since closed circuit television is not used in isolation of other media, no appraisal of the impact of closed circuit television alone is possible. Each in-service education task in which closed circuit television is used may also be contributed to by building supervision, central office consultation, professional study and reading, or other means. Additional uncontrolled elements possibly associated with the success or lack of success of the closed circuit television observation medium include the following: (1) background and readiness of the teacher group; (2) attitude of the building administrator toward the particular project and toward the use of closed circuit television in his school; (3) actions of the particular class and teacher being studied; (4) prior experience with television in other situations; (5) existing attitudes toward leadership personnel, and (6) any of a number of other human or situational elements.

The most typical group of teachers or others taking part in an in-service education project is the entire group of professional persons within a school concerned with the particular program, hence the use of comparison groups as controls is not feasible.

It is also held important that the requirements of the research design be of such nature as not to draw the attention of the participants to the appraisal procedure, to the detriment of the particular in-service education project. It is assumed that participants, either observer or leader, would give their full attention to the specific project and that data from these participants would be elicited well after the completion of the project, and then from only a sampling of the participants.

The effectiveness of closed circuit television in the study setting is assumed to be determined best by the systematic use of judgments of qualified persons in educational supervision and in-service education. Supplemental reactions would be gained from a sample of the teachers who had experienced the use of the closed circuit television medium. The criteria for effectiveness would be those conditions thought by educators to be associated a successful in-service education session or series of sessions.

The investigation phases of the project were established to satisfy the following requirements:

1. Identifying those conditions thought by educators to be associated with a successful in-service education session.

2. Observing, recording, and appraising the closed circuit television viewing sessions by an objective observer, the observation record to include (a) a chronological log of events, (b) a description of the setting, (c) an appraisal of certain key elements of the viewing session emphasizing those essential conditions, and (d) other comments by the observer.

3. Recording the impressions, suggestions, and evaluation of the closed circuit television staff project leaders and a sample of the viewer/participants concerning the project.

The Research Questions

The investigation is designed to provide data pertinent to the general question, "Is closed circuit television an effective additional medium for use in a school district in-service education program for teachers?", four major research questions, and twenty sub-questions. These research questions are based on the assumed characteristics of the successful in-service education session. Lacking direct evaluation of the effectiveness of closed circuit television in changing teacher behavior and developing greater insight into educational questions, the presence of these criteria, permitting positive answers to the research questions, will be accepted as evidence of success of the closed circuit television medium.

Question #1: As viewed over closed circuit television did the classroom seem to be a natural setting?

The direct observation of a competent professional carrying out a task is a key procedure for professional training in many fields, including medicine, law, dentistry, and, of course, education. The technique of classroom visitation has become almost universal in pre-service teacher education and strongly recommended for in-service programs.

Classroom procedures and teacher-pupil relationships are highly complex, highly personal, and quite unique to a teacher and to a class. If an understanding and appreciation of the demonstrating teacher's knowledge, procedures, and inter-personal relationships are to be communicated to the observer, the observed situation must not be contaminated by unnatural elements—persons, equipment, or other.

Hence, it would seem essential that the observation make available to the viewer of a classroom or other subject, in order to carry out its purpose, as accurate a presentation of the classroom as possible.

Question #2: Were the audio and video systems effective in providing (1) accuracy and completeness of coverage and (2) the emotional tones or "feel" of the classroom?

Closely related to Question #1 is that of the effectiveness of the audio and video systems in providing a reasonably complete and accurate representation of the classroom activities. It is assumed that in such a representation of the classroom, if the attendent emotional tones were preserved, that observing teachers would be gaining insights, understandings, and other reactions which would aid them in understanding the educational processes at work.

Question #3: Was the format and conduct of the viewing sessions condusive to clear observation and good discussion?

In establishing the criteria for the format and process of the viewing session, the Fontana Closed Circuit Television Steering Committee formulated standards for the viewing session. The standards were held to be consistent with School District procedures and with views on in-service education held generally in the field of teacher in-service education.

The following features of the effective viewing format were established as requirements:

(1) That a reasonable orientation to the new and unusual closed circuit television viewing format be accomplished. It was assumed that a professional group working in a strange situation would be working under unpromising conditions if understanding of and, more importantly, assent to cooperation, obtained. One of the attendent areas for investigation was the identification of promising practices in accomplishing this orientation.

(2) That a competent leader of discussion be present to assist the group in (a) observing key features in the classroom and learning situations, (b) clarifying observations, (c) identifying questions, (d) arriving at generalizations, (e) sharing perceptions, (f) identifying promising procedures, (g) arriving at conclusions, and other significant elements suitable to the particular viewing session. It was assumed that an accurate presentation of pupils and teacher at work followed by purposeful thought and discussion would be evidence of in-service growth on part of the viewer participants. It was hoped to add to our knowledge of good leadership practices would be broadened through careful observation and analysis of the leader at work.

(3) That distractions of any type be minimized.

Question #4: Were the closed circuit television viewing sessions a valuable additional medium for in-service education?

It was held to be important that a general criterion for value of the closed circuit television in-service education sessions, without regard for specific features, be included. This assumed that the total impact of the medium may be somewhat independent of anticipated elements. This question is also consistent with the use of qualified observers as judges of the value of the sessions both in anticipated specifics and in total effectiveness.

The Respondents

Three classifications of respondents were identified as required to carry out the investigation: (1) observers; (2) teachers; and (3) project leadership personnel. The responses from other interested observers, closed circuit teacher demonstrators, and discussion leaders, were also encouraged.

Observers:--The requirements of the research design place heavy emphasis upon the judgments of skilled persons in the in-service education of teachers. The research plan required that an observer be in attendance at as many of the formal closed circuit television viewing sessions as possible, a goal that was accomplished in 36 out of 44 total viewing sessions held. It was further required that the observer complete an evaluation instrument containing both structured and non-structured elements.

Those persons selected as observers met the criteria of competance and availability. The following categories of personnel made up the observers group:

10 District Elementary Principals
4 Secondary Principals
1 Administrative Assistant
2 Professors of Education.—both specialists in in-service education, from a local graduate school of education.
1 Secondary Curriculum Consultant
1 Assistant Superintendent-Special Services and former High School Principal.

The orientation of principals and central office staff had been accomplished in early planning and general orientation programs as well as through mimeographed announcement. The evaluation instrument was explained to the observer by the Project Coordinator.

Each of the individuals chosen as observers had classroom teaching experience at the level of the observation and held administrative and supervisory credentials for service as instructional leader in the Public Schools of California. All principals served as observers in schools other than their own.

Teachers:--The research design required that a random selection of teacher/viewers be included as respondents to gain the "consumer's" view of the closed circuit television program. Meeting the requirement that the evaluation program not interfere with the direct in-service purpose of the project, teacher respondents were not asked to concern themselves with evaluation during or soon after the viewing sessions. Anticipating that teachers in any school, after having had a common and unusual experience, would discuss the program and share views, at least one teacher respondent were selected from each of the fourteen schools of the school district.

Randomness was insured by selecting that teacher from a school who happened to have a free time when the interviewer was in the school. It is assumed that no teacher was more likely to be selected than any other. At the time of the interviews the closed circuit television medium has been widely used and almost all teachers in the elementary and junior high schools had participated, as well as a number of teachers from the high school. The number of sessions in which the teacher/respondents had participated varied from one to fifteen,

Scheduled interviews were conducted by a junior high principal who had served as the research assistant and member of the Project Steering Committee.

Project Leadership Personnel:--Members of the Project leadership staff were in a position to gain the greatest amount of experience in planning, carrying out, and observing the closed circuit television viewing session. Their responses were gained from written records kept during the project and from a two-hour evaluation discussion held at the conclusion of the project. The Research Coordinator served as interrogator at the evaluation discussion, which was tape recorded. Covered in the discussion were those elements identified as being of probable importance, including the research questions and additional remarks on any related topic. Since this group had worked closely as a leadership team, the advantages of mutual discussion, stimulation, and challenge were held to outweigh the possible value of objectivity of individual interviews. Participants included the Project Director, a district consultant in in-service education and curriculum, and the District Director of Guidance.

The Instruments

Instruments were developed for use by teacher and observer respondents. Form 101 (Appendix E) was developed for use by observers. Its sub-sections were: (1) description of setting for television viewing; (2) chronological description of activity; (3) evaluation of observation, including appraisal of technical efficiency of the equipment, response by viewers, and effectiveness of leadership. Optional parts of the observers' instrument to be completed where possible were: (1) reactions of the discussion leader and (2) reactions of the closed circuit television teacher or other subject. Responses from the instruments were collated on a master list, from which the evaluation report was written.

The instrument used as the interview schedule for teacher respondents (Appendix H) was developed from the four research questions listed above and consisted of twenty sub-questions. The sub-questions which held promise of aiding teachers to present their observations, feelings, and appraisal of the closed circuit sessions were posed. Respondents were read each question by the interviewer. After each initial response the respondent was asked to give supporting or elaborating ideas, observations, or opinions. Notes were taken during the interview to aid in reconstruction of the responses. The interviewer reported that teacher/respondents were at ease, were willing contributors, and that assurances of anonymity of response were accepted.

These responses were categorized and a frequency distribution of occurrence of the generalized responses were reported.
Form 104 (Appendix G) was developed for use by supplementary respondents, an consisted simply of an invitation to give reactions to closed circuit television viewing session or other development that seemed to require a written record.

Evaluation Structure

The evaluation structure as developed by the Closed Circuit Television Steering Committee and approved by the Superintendent is as follows:

CCTV Evaluation Structure

Task	Responsible Person or Group
1. Over-all direction of closed circuit television study.	Study Coordinator (designated "Project Director" by NDEA.)
2. Determination of policy on closed circuit television study.	Closed Circuit Television Steering Committee and Superintendent.
3 Development of Research Design and Research Plan.	Research Consultant, aided by other members of district staff as requested.

CCTV Evaluation Structure (Continued)

Task		Responsible Person or Group
4	Approval of Research Design	Closed Circuit Television Steering Committee
5	Selection of Projects	Superintendent upon recommendation of CCTV Steering Committee
6.	Designation of Project Chairman (in charge of each in-service project)	Superintendent upon recommendation of CCTV Steering Chairman
7.	Design of project, including goals, personnel, etc.	Project Chairman, Project Committee, Study Coordinator/ Project Director and appropriate District Staff
8	Approval of Project Design	Steering Committee
9	Planning of individual observation (including completion of Form 102, Planning Sheet (Appendix F)	Project Chairman
10.	Approval of individual observation.	Study Coordinator/Project Director
11.	Roster of viewers Form 103 (Appendix G)	Project Chairman
12.	Report and evaluation of observation session	Observer
	A. Description of Setting	Observer Form 101, P. 2
	B. Chronological description of activity	Observer Form 101, P. 3
	C. Evaluation of observation	Observer Form 101, P. 4
13	Approving and accepting of observation session	Study Coordinator/Project Director

CCTV Evaluation Structure (Continued)

Task		Responsible Person or Group
14	Recording observations, reactions, and reflections by others on an individual observation or another aspect of the project or study.	Any Administrator, Research Consultant, Study Coordinator/ Project Director, in-service education staff person or other. Use Form 104 (Appendix G) (To be completed by any qualified individual upon request of Study Coordinator/ Project Director or upon individuals own initiative)
15	Interviewing of teacher/ respondent	Research Assistant
16	Evaluating of effectiveness of each in-service project	Project Chairman and other designated persons
17	Collation of data and development of over-all evaluation of study	Study Coordinator, Consultant, and Research Assistant
18	Approval of over-all evaluation of study	Steering Committee and Superintendent
19	Reactions of Project Leaders to any aspect of the larger study	Free associating discussion: observations and other experiences during entire project.

Research Report

The research report was written by Lee Follis, Project Director (Study Coordinator); Dr. Arthur King, Research Coordinator; W. Lloyd Johns, Research Assistant and interviewer of teacher/respondents.

CHAPTER IV

DESCRIPTION OF THE IN-SERVICE EDUCATION PROJECTS

The experimental year's television activities divided themselves into two categories; formal projects planned and developed as a part of the district in-service education program and informal projects undertaken with a variety of purposes. The latter included public information and orientation to the purposes of the research project; experimentation with group size and audience composition; and actual use of the subject content of the observation.

Formal In-Service Projects—(Summarized in Table 1)

1. Personnel Interview

   This project was a series of three personnel interviews conducted by district administrative personnel and local college personnel. It was the first series of observations and actually had a dual purpose. The primary purpose was to study interview methods: a secondary purpose was to acquaint the district administrative personnel with the actual operation of the television equipment so they might better interpret the intended program to their staffs.

   The viewing group consisted of all of the district administrative staff as well as the principals and vice principals from the district elementary and secondary schools. The three candidates being interviewed were volunteers from a local graduate school that were not actually applying for employment in Fontana. They represented three grade levels of instruction.

   The first and third interview observation sessions were conducted by the District Superintendent and the Director of Personnel, each interviewing the candidate in succession. The second session was a group interview conducted by the Superintendent, the Director of Personnel, and an Associate Professor of Education from a neighboring graduate school.

2. Primary Reading/Writing

   The purpose of this project was to promote the consideration of a promising technique for teaching reading through pupil writing. A primary teacher from the local school that was successfully using the method was used as the demonstration teacher and the remainder of the primary staff of that school observed.

TABLE I

FORMAL IN-SERVICE EDUCATION PROJECTS USING CCTV

ACCOMPLISHED DURING EXPERIMENTAL PERIOD

Project	Date	Time	No. of Viewers	Discussion Leader	Composition of Viewing Group		Method of Teacher Release
1 Personnel Interview	4/4/60	9:30-11:00	22	SECONDARY CONSULTANT	ENTIRE DISTRICT ADMINISTRATIVE STAFF		
	4/27/60	10:00-11:00	24	ASST. PRIN. - HI SCHOOL			
	5/5/60	3:30-4:30	22	DIR. OF ADULT EDUC.			
2 Primary Reading-Writing	10/13	9:50-11:00	12	ELEMENTARY CONSULTANT	PRIMARY STAFF OF RESPECTIVE SCHOOL	R.P.	Arranged by Principal primary assembly -film -filmstrip story divided classes among intermediate classes
	11/9	9:40-10:45	10			Redw.	
	11/17	8:45-9:45	10			Ol.	
	12/1	8:30-9:30	11			N.T.	
	12/8	8:30-9:30	10			S.T.	
	1/11	8:30-9:30	11			Palo.	
3 Intermediate Reading -basal -selective	10/12	2:10 to 3:10	9	ELEMENTARY CONSULTANT	INTERMEDIATE TEACHING STAFF OF RESPECTIVE SCHOOL GRADES 4, 5, & 6	R.P.	Primary teachers covered intermediate classes for last hour of the day
	10/13		9				
	10/19		5			J.H.	
	10/20		6				
	11/1		8			W.H.	
	11/2		9				
	11/9		8			Redw.	
	11/10		7				
	11/16		9			Ol.	
	11/17		8				
	11/29		8			N.T.	
	11/30		8				
	12/7		9			S.T.	
	12/8		8				
	1/11		8			Palo.	
	1/12		8				
	1/18		8			Pop.	
	1/19		10				
	1/25		8			Jun.	
	1/26		8				
4 Reading Conference Preparation	3/9	1:15-2:10	12	ELEMENTARY CONSULTANT	A REPRESENTATIVE OF EACH ELEMENTARY STAFF CHOSEN TO REPRESENT SCHOOL AT CLAREMONT READING CONFERENCE		Principal covered class as arranged for coverage
	3/16	11:25- 12:00	12				
	4/7	10:50-11:45	12				
5 Social Studies	12/15	10:30-11:15	12	ELEMENTARY CONSULTANT	ELEMENTARY PRINCIPALS		
	12/6	10:15-11:00	10		PRIMARY STAFF OF LOCAL SCHOOL	R.P.	-organized play period
6 Art	10/21	9:50-10:40	5	ELEMENTARY CONSULTANT	PRIMARY STAFF OF RESPECTIVE SCHOOL	J.H.	Arranged by Principal -see above method of primary coverage
	11/3	10:00-11:00	7			W.H.	
	1/20	9:30-10:30	10			Pop.	
	1/25	10:45-11:40	8			Jun.	
7 Algebra	3/15	3:15-4:00	28	CHMN - MATH DEPT.	SECONDARY MATHEMATICS TEACHERS		After school hours
8 Reference Skills	1/31	2:10-3:00	26	ELEMENTARY CONSULTANT	ALL DISTRICT INTERMEDIATE TEACHERS -1/3 of each staff for each observation		Primary teachers relieved intermediate teachers for the last hour
	2/8	2:10-3:00	32				
	2/15	2:10-3:00	28				
9 More Capable Learner	5/23	3:20-4:00	25	DIR. OF GUIDANCE	ALL ELEMENTARY PRINCIPALS AND ENTIRE STAFF OF ONE ELEMENTARY SCHOOL		After school hours
	5/24	2:00-3:00	25	ELEM. CONSULTANT			

3. Intermediate Reading

In this series, two observations were made in each elementary school of the district. They were held on successive days. The first observation in each school was devoted to the use of a basal reader as the major tool in the reading program. On the following day the same group of intermediate teachers observed a reading lesson using a self-selection approach to the reading materials.

The ensuing discussion was directed to the advantages and disadvantages of each method and the adaptation of the better elements of each into each teacher's own teaching method. In this series, more than any other, the teacher became a part of the discussion group immediately following the observation.

4. Reading Conference Preparation

The observing group for this series of observations consisted of a representative from each elementary school plus the two district Teacher Helpers. This group had been chosen to attend the Claremont Reading Conference at District expense. They were to serve as unofficial reading specialists for their particular schools and to help with local school in-service education projects in reading development.

The series of three observations were planned as overall look at the elementary reading program to re-acquaint these people with reading methods in use from primary through intermediate grades.

5. Social Studies

A particular second grade classroom with an outstanding social studies program based on student research was used for these two observations. The first viewing was observed by the remainder of the primary staff of that school. The second observation was for the elementary principals of the school district.

6. Art

This group of observations were held for the primary staff in four elementary schools. The District Art Consultant taught the lesson, usually in a third grade class. Each observation was a lesson in clay modeling and took the entire process from organization and materials distribution to clean up.

The accompanying and following discussion was not limited to art technique but encompassed classroom organization, motivation, control, and other factors in teaching.

7. Algebra

A single observation on the teaching of Algebra was a part a series of organized meetings' attended by the mathematics staff of the four secondary schools. The meetings were planned by the District and County Secondary Curriculum staff and partially supported by NDEA funds. Many authorities were used as resource people during the year—long series.

The observation lesson was taught in an eighth grade classroom by a national authority on new mathematics methods, Dr. Max Beberman.

8. Reference

A series of three sessions on Reference Skills was unusual in that it used a representative of a commercial firm as a teacher.

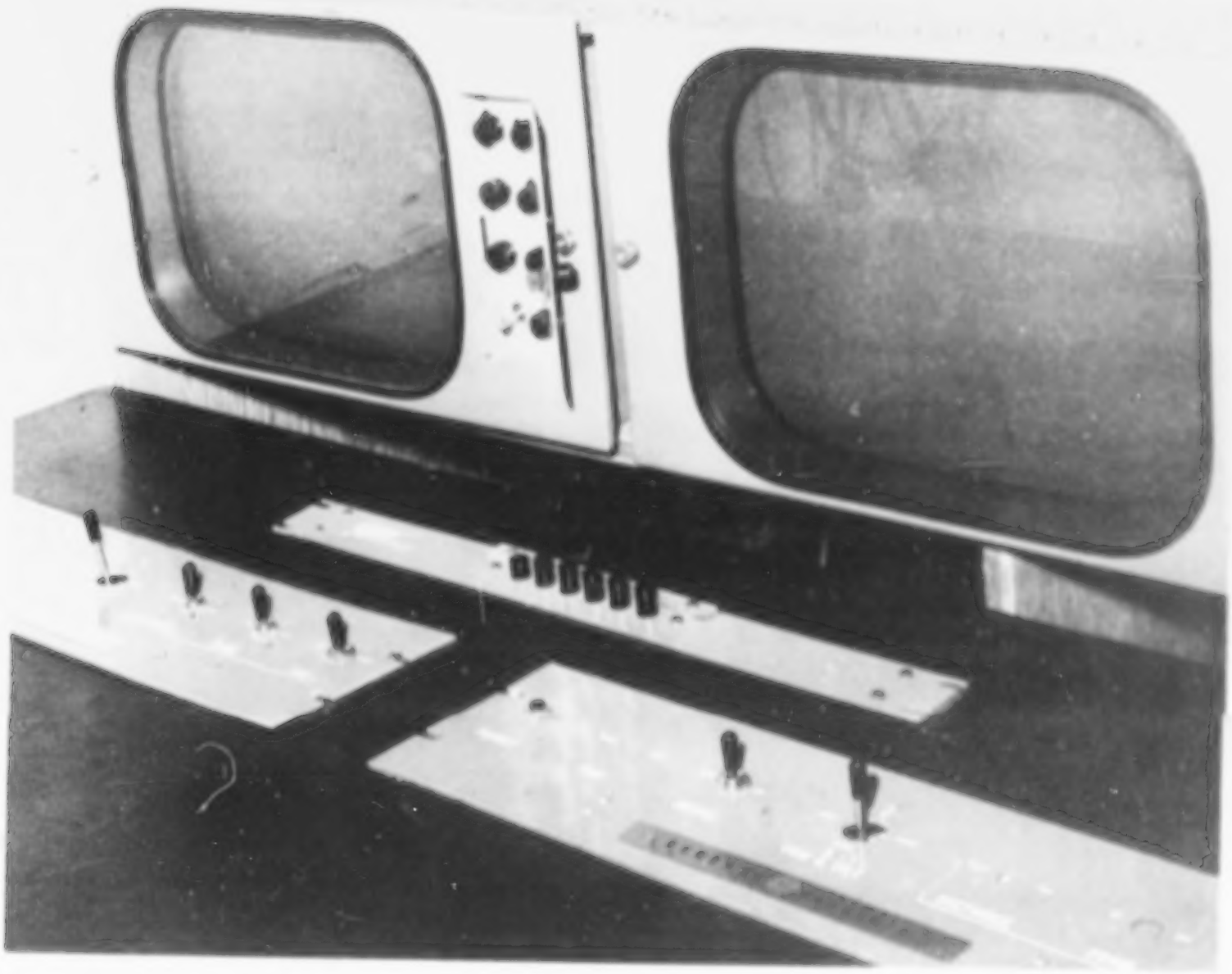
The series was devoted to a follow-up orientation on the use of topically oriented reference sets-in regular classroom use. The viewing group was the entire District intermediate grade staff.

9. More Capable Learner

Two observations were a part of a committee study in planning for the coming years program in education of the gifted.

The first observation was of a mental test administration and guidance interview. The Director of Guidance acted as leader during test and the following discussion and parent interview.

The second observation was of the same child in the regular classroom to allow observers to observe the performance of this child under normal classroom conditions.



Informal Projects—(Summarized in Table 2)

1. School Trustees

This was an observation of an arithmetic lesson conducted by a professor of education and mathematics specialist from the University of California-Riverside and a small group of 5th graders. The viewers were the members of the Boards of Education of the many school districts within Riverside Count: It was a part of the program on modern instructional aids presented at a dinner meeting of the group.

2 Parent Teacher Associations

These were observations presented as a part of the program at a regular meetings of the Parent Teachers Association. The remainder of the meeting was usually devoted to a discussion of the project and its purposes. The observations were of regular classrooms within their school. For evening meetings, a teacher and his class came back to present a lesson for observation.

3. Rotary Club

A student government group in action was presented for a local service club of their regular noon luncheon meeting. A presentation of the project and its purposes was also made to the club group.

4. Parent Teacher Association Council

The Fontana Parent Teacher Association Council observed a first grade reading lesson. The viewing group was composed of the officers of the Parent Teacher Association Council and the presidents of each Parent Teacher Association unit in the district. The meeting was the regular monthly meeting of their group with the Superintendent of Schools.

The purpose of the observation was to become acquainted with the television project and its purposes as well as the variety of approaches used in teaching beginning reading.

TABLE 2

RELATED INFORMAL IN-SERVICE EDUCATION PROJECTS USING CCTV

ACCOMPLISHED DURING EXPERIMENTAL PERIOD

Project		Date	No. of viewers	Observation	Composition of Viewing Group
School Trustees	1	9/27	200	Arithmetic	Riverside County School Trustees Association
P. T. A.	2	10/3	30 to 200	Regular Classroom	Palmetto
		10/11			Poplar — Parent Teachers
		11/10			Oleander — Association membership
		11/17			Fontana High
		1/10			North Tamarind
		4/6			Randall Pepper
Rotary Club	3	12/15	75	Student Panel	Fontana Rotary Club
PTA Council	4	2/15	18	Primary Reading	P T A Presidents and district Superintendent
Interdistrict Visitors	5	2/10	56	Art Lesson	Entire staff of a nearby rural district - visitation
Math Conference	6	3/3	450	Arithmetic Gr. 2 Gr. 8	State sponsored Mathematics Conference Administrative and supervisory personnel from entire state
Future Teachers	7	3/8	23	Primary Reading	Fontana High School Future Teachers Club
		3/15		Intermediate Reading	
Superintendents	8	3/16	40	Reading Gr. 4	Regional Superintendents Meeting
Public Information Adult Education Fair	9	4/10	150	History-Adult	Public
Public Information Public School Week visitors	10	4/24 through 4/28	450 Total	Variety of elementary subject and grade level combinations	Public
School Psychologists	11	5/3	22	Psychological testing	San Bernardino and Riverside Counties School Psychologists
Curriculum Consultants	12	5/4	25	Social Studies Gr. 2	Secondary Curriculum Consultants - Inland group
Speech Therapists	13	5/19	12	Speech Therapy	Speech therapists from surrounding area
Workshop Participants	14	6/29/60	63	Psychological Testing	Workshop in Mental Retardation University of California - Riverside Summer 1960
		6/30/60			
		7/7/60		Point 2 Class	
		7/8/60		Pediatrician	
Workshop Participants	15	7/22/61	60	Psychological Testing	Workshop in Mental Retardation University of California - Riverside Summer 1961
		7/26/61			
		7/28/61		Point 2 Class	
		7/29/61		Point 2 Class	
Workshop Participants	16	2/11/61	63	Play Therapy and Parent Interviews	Workshop in the Emotionally Disturbed University of California - Riverside
		2/18/61			
		2/25/61			
		3/4/61			
		3/11/61			

5. Interdistrict Visitors

The entire staff (about 50) of a nearby school system visited the Fontana schools for the entire day. As one part of the visitation schedule they all went to one school and observed a lesson via closed circuit television.

6 Mathematics Conference

A state wide conference on mathematics sponsored by NDEA, California State Department of Education, and Claremont Graduate School was held at Claremont. The participants were superintendents, professors, state department consultants, and curriculum staff people from districts throughout Southern California.

As a part of one general meeting, two demonstration lessons were observed in mathematics teaching via television. The audience numbered about 400, the largest group to use the equipment.

7. Future Teachers

Two lessons were observed by the Future Teachers Club of our high school. One was primary and one intermediate. The district staff assisted in the interpretation of the viewed lessons.

8. Superintendents

This observation was combined with a regular formal observation. This group of visiting Superintendents sat in on the observation and part of the discussion during a regular in-service use of the medium.

The group was composed of Superintendents from this region of the Superintendents Association.

9. Public Information - Adult Education

This observation was presented as a part of the program of the annual Adult Education Fair highlighting the accomplishments of many of the adult courses. An adult class in United States History was televised for the audience that was assembled in the school auditorium.

10. Public Information - Public Schools Week Visitors

This was a series of twenty observations conducted in ten elementary schools during Public Schools Week. The public was invited to attend any of these twenty sessions that were designed to cover all grade levels and subjects in the elementary grades. Two observations were conducted in a school in a half day and the unit was moved to another school for a like schedule during the other half day.

11 School Psychologists

At a regular meeting of school psychologists from a two county area, a testing session was observed to illustrate to this group the capabilities and advantages of this type of observation of psychological work.

12. Curriculum Consultants

The Inland regional section of the Secondary Curriculum consultants group held a regular monthly meeting in Fontana and observed a second grade social studies lesson.

13 Speech Therapists

A small group of speech therapists from the surrounding area met to observe therapy sessions conducted by Fontana District therapists. Five short sessions were conducted during the morning. They represented all grade areas and different groupings as well as different classifications of speech difficulties.

14 Workshop Participants

This was a series of observations conducted as a part of a summer session workshop on teaching the mentally retarded child conducted in the district by the University of California in the 1960 summer session. The first two sessions were observations of the administration of Binet and WISC individual intelligence tests to several mentally retarded children. Only parts of the tests were administered due to time limitations. One observation was conducted of classroom

activities in Fontana's school for severly retarded children, and one was devoted to the observation of a local pediatrician's examination of eight children and his illustration of typical physical characteristics and reflex reactions of various types of severly retarded and handicapped.

15. Workshop Participants

This series was identical to the one described previously (#14) and was conducted in the 1961 summer session through the same University. The first two were of test administration. The second two were of classroom activities.

16. Workshop Participants

This series was very similar to the workshop series described above, but was devoted to the study of the emotionally disturbed. The sessions were devoted to the observation of play therapy sessions conducted in a specially equipped room. In each case, an interview with the parent was conducted in the privacy of the play therapy room and also televised to the viewing group.

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CHAPTER V

PRESENTATION OF THE DATA

Data were gathered to answer four key research questions and twenty sub-questions. Each question was based on assumptions about the nature of the successful in-service education viewing session. The data from the several classes of respondents, (1) observers, (2) selected teachers, and (3) closed circuit television staff members, are presented under the appropriate key question. Summary and conclusions are found in the concluding chapter.

Question #1

As Viewed over Closed Circuit Television Did the Classroom Seem to be a Natural Setting?

Important among the assumptions about the use of closed circuit television for classroom viewing was the capability of the equipment to give the viewers an accurate, relatively complete view of the activities of the classroom, without disturbing the physical arrangement of the normal class and without the introduction of other disturbing effects. In simple terms, was the classroom seen on the closed circuit television the "same" classroom that would be available to a silent and unseen visitor?

Responses by Observers

Official observers were always working in a school other than their own and rarely had the opportunity to become familiar with room environment and teacher-pupil relationships before the viewing session. Accepting this limitation, observers almost unanimously judged the classroom presented by the closed circuit television equipment as normal and natural.

One comment on a first observation in a *second grade classroom was*, "The children quickly accustomed themselves to having television paraphenalia in the room and by the time we received our 'cue to go on' the cameras and microphones were forgotten." Other comments suggesting the naturalness of the closed circuit television picture are as follows:

> THE TELEVISION LETS US VISIT THE CLASSROOM IN A MORE NATURAL SITUATION THAN EVER BEFORE. THIS LETS US SEE THE REAL THING. CHILDREN REACT IN A NORMAL WAY.
>
> TEACHER WAS NOT FRIGHTENED BY TELEVISION AND OBSERVERS. SEEMED MUCH AT EASE AND IN CONTROL OF THE SITUATION.

One observer reported that he was told by a teacher viewer that the closed circuit television demonstration teacher had expressed "nervousness and some qualms about appearing" on the program and that she had been "very upset" on the prior day. None of this tension was apparent to the observer, and a comment by the teacher after the session suggested that she had forgotten all about the cameras after the first five minutes.

Responses by Teachers

Three sub-questions concerning the naturalness of the classroom viewed on closed circuit television were asked of the twenty teachers selected at random from the faculties of each of the participating schools to aid in appraising the effectiveness of the closed circuit television as an in-service teacher education medium. One sub-question was concerned with the over-all view and one question each was directed toward teacher and pupil reactions.

Sub-question #1.1:—As viewed over closed circuit television did the classroom seem to be a normal setting?

RESPONSE	FREQUENCY
VERY NATURAL.	14
NORMAL, AFTER TEACHER AND STUDENTS ARE ACCUSTOMED TO THE ARRANGEMENTS.	6
TOO MUCH LIKE A STAGE; ABNORMAL.	3
MISSED THE WARMTH AND EMPATHY.	2
LOOKED BETTER THAN ACTUAL VISITATION.	1
CLASSROOM CHANGE LIMITED SOME ACTIVITY.[1]	1

Sub-question #1.2:—Was the reaction of students in the viewed classrooms affected?

RESPONSE	FREQUENCY
YES	13
NO	7

If so, how was the reaction of students affected?

RESPONSE	FREQUENCY
CURIOUS FOR FIRST FEW MINUTES, THEN QUITE NATURAL.	7
STUDENTS TRIED HARDER TO CONCENTRATE.	4
CAMERA NOISE ATTRACTED SOME STUDENTS.	2
SOME STUDENTS BECOME EXTROVERTIVE.	1
LESS DISTURBING THAN HAVING PEOPLE IN ROOM.	1
RESTRICTED SOME DISCUSSION.	1

[1] IN A FEW CASES FURNITURE ARRANGEMENTS WERE MADE TO GET BETTER CAMERA COVERAGE. THE RESPONDING TEACHER NOTED THAT THIS APPEARED TO LIMIT NORMAL MOVEMENT AND ACTIVITY.

Sub-question #1.3:—Was the reaction of teachers in the viewed classrooms affected?

RESPONSE	FREQUENCY
YES	5
NO	14
NO COMMENT	1

If so, how was the reaction of the teachers affected?

RESPONSE	FREQUENCY
ANXIOUS, BUT NOT ADVERSELY SO.	5
TEACHER WAS BETTER PREPARED THAN USUAL.	3
AT FIRST, SOME AWARENESS OF IT, BUT AFTER FIRST FEW MINUTES YOU FORGET IT.	1
TEACHER WAS VERY NATURAL.	1
TEACHER DIDN'T SHOW NATURAL WARMTH AND PERSONALITY.	1

It may be inferred from some of the responses given above that in some cases respondents were referring to their own reactions as closed circuit television demonstration teachers and in other cases were referring to colleagues whom they had observed.

Comments by Closed Circuit Television Staff

Observation by those members of the supervisory staff who worked consistently with the Project emphasized strongly that the most typical view of the classroom as observed by the viewer/teachers was that of a normal classroom. The staff noted that features of the environment such as bulletin boards, arrangement of interest centers, and inter-relationships between teacher and pupils were accurately pictured.

Supervisors reported that teachers were "themselves," although a few were noted as "hamming it up". The typical reaction of pupils was held to be that of interest in the equipment for the first few minutes and no apparent concern thereafter. An occasional pupil at the junior high school level "mugged" when noting the cameras' placement upon him, but operators were quick to note this and solved it by repositioning the cameras.

One staff member, commenting upon a personnel interview viewing session, said, "The drama of the interview was quite apparent on the closed circuit television, with many facial and audible reactions to the presentation."

In summarizing its experience with a number of teachers in a large number of classrooms and schools throughout the school district, the closed circuit television project staff concluded that the great majority of teachers are proper, willing, and effective subjects for closed circuit television viewing.

Question #2

Were the Audio and Video Systems Effective in Providing
(1) Accuracy and Completeness of Coverage, and
(2) the Emotional Tones or "Feel" of the Classroom?

The effectiveness of the audio and video systems is, of course, the central area of concern in appraising the use of closed circuit television in the in-service education program. It was assumed in designing the systems that clear, sharp pictures of selected elements of classroom activity would be required and that a variety of types of "shots" should be available--close-ups of children, pictures of small groups, and wider views of the entire room.

Specifications for the audio system included the following: (1) need for clear, normal voices from teacher and pupils, (2) need for spatial orientation to the normal sounds of the classroom, and (3) need for keeping ambient noise to a minimum. The experience of projects using related applications of closed circuit television have found the production of satisfactory sound to be the greater problem.

Responses by Observers on Video System

Observer comments on the video presentation were considerably fewer than those on the audio system. A possible explanation of this difference is that the observers noted deviations from their expectancy pattern and that the visual presentation was more typically satisfactory hence "inconspicuous" than was the sound system. The collation of observer comments suggests the following:

(1) The video presentation was rated "good" to "excellent." A categorization of the comments of 32 observers is as follows:

Rating	Frequency
EXCELLENT	15
VERY GOOD	9
GOOD	9
"OK"	2

(2) The quality of the picture improved with experience in using the equipment.

(3) The video equipment proved to be flexible in operation, making possible close-up shots of child, teacher, or aspect of the room environment; distance or rather wide shots of the room; and changing from one subject to another.

Representative comments

GOOD—DETAILS MISC EASILY SEEN.

EXCELLENT: GOOD CLOSEUPS OF TEACHER AND CHILDREN AS WELL AS DISTANCE SHOTS SHOWING ENVIRONMENT.

THE CLASSROOM WAS COVERED VERY WELL. ONLY ASKED TO SEE THE WORK CHILDREN WERE DOING AND TO SEE THE EXPRESSIONS ON THEIR FACES. THIS WAS COVERED VERY WELL.

Responses by Teachers on Video System

Teachers' comments on the sharpness and clarity of the picture presentation were typically positive; comments on the positioning of the cameras, though generally positive, pointed up several areas for possible improvement. Two questions concerning the video system were asked of the teacher group; the questions and responses follow:

Sub-question #2.1:—What was the quality of the picture, in terms of brightness, detail, contrast, etc.?

RESPONSE	FREQUENCY
PICTURE WAS VERY GOOD.	16
PICTURE WAS GOOD.	3
PICTURE WAS FAIR.	2
NOT ACCEPTABLE, NEED LARGER VIEWING SCREEN.	1

Sub-question #2.2:—Keeping in mind what you look for during personal classroom visitation, did closed circuit television allow you to see what you wanted to see?

RESPONSE	FREQUENCY
VERY WELL, NO PROBLEMS.	0
YES, IN MOST CASES USUALLY	4
SCREEN WAS GETTING DARK IN CLASSROOM SITUATIONS.	4
CLOSER SCREEN WOULD HELP.	3
WOULD LIKE TO SEE MORE OF STUDENTS' ACTIVITY.	3
MISSED THE OVERALL VIEW OF CLASSROOM.	3

Comments by Staff on Video System

The staff held that the video system has more than met expectations. The Project Director made the following statement:

THE CAMERAS PERFORMED CONSISTENTLY WITHOUT DIFFICULTY IN SPITE OF THE COMPARATIVELY ROUGH HANDLING THEY HAVE TAKEN IN CONTINUOUS MOVEMENT FROM PLACE TO PLACE. THEIR COMPLETELY TRANSISTORIZED CONSTRUCTION HAS GIVEN THEM RUGGEDNESS AS WELL AS COMPACTNESS. EACH IS A 30" HOUSING IS THE ENTIRE VIDEO SYSTEM INCLUDING HORIZONTAL SYNC GENERATOR, FOCUS MOTOR AND TURRET ROTATION MOTOR. THERE ARE NO EXTERNAL HOUSINGS AND NO EXTERNAL CONTROL UNITS OR CONSOLES. A 3" x 3" x 3", 110 VOLT TO 24 VOLT TRANSFORMER IS THE ONLY EXTERNAL UNIT NEEDED, BESIDES LENSES, TO OPERATE THE CAMERAS. IN FIFTEEN MONTHS OF CONSISTENT USE THERE HAS BEEN NO MAINTENANCE NEEDED ON EITHER CAMERA.

SENSITIVITY IS ANOTHER VALUABLE CHARACTERISTIC THAT HAS BEEN AN ADVANTAGE IN THIS SYSTEM. AT NO TIME HAS THE STAFF FOUND IT NECESSARY OR VERY DESIRABLE TO USE SUPPLEMENTARY LIGHTING. THE EVEN, ARTIFICIAL LIGHTING OF A CLASSROOM HAS BEEN FOUND SUPERIOR TO THE HIGHER LIGHT LEVEL COMING FROM SUNLIGHT. THE ELECTRONIC AUTOMATIC LIGHT COMPENSATION CIRCUITRY AVERAGE THE PICTURE TO THE HIGHEST LEVEL RECEIVED, THEREFORE A BRIGHT SPOT OF LIGHT RESULTS IN A DARKENED PICTURE. ON OCCASIONS WHERE DESK TOP REFLECTIONS AND BRIGHT WINDOWS WERE UNAVOIDABLE, IT WAS FOUND DESIRABLE TO DRAW THE CURTAINS AND RELY SOLELY ON ARTIFICIAL LIGHT.

THE CHOICE OF ONE CAMERA EQUIPPED WITH A VARIABLE FOCAL LENGTH LENS AND ONE EQUIPPED WITH A 4 LENS TURRET PROVED TO BE A WISE ONE. IT PROVIDED THE FLEXIBILITY THAT GREATLY AIDED IN CONSISTENTLY SATISFACTORY COVERAGE. THE ONLY DISADVANTAGE, AND A SLIGHT ONE, WAS THE RELATIVELY SOFT FOCUS OF THE "ZOOM" LENS.

Responses by Observers on Audio System

As noted previously the observers had many more comments on the audio than upon the video system, in a ratio of approximately 3:1. The following generalizations seem warranted by the data on observer reports.

(1) The ratings of the clarity and effectiveness of the audio system ranged from excellent to poor.

(2) Extraneous or ambient noise was generally noted as a problem. Typical statements supporting this proposition are:

SOME STATIC, BUT ADEQUATE.
SOUND MUFFLED AT TIMES.
SOUND IS MUCH BETTER THAN IN PRIOR SESSION; INCIDENTAL NOISE IS DISTRACTING AND NERVE RACKING.
NOT GOOD--MIKES PICKED UP OUTSIDE NOISES.

(3) Equipment, largely during the early or "shakedown" period, did not perform with perfect reliability. Observers comments are:

SOUND IS VARIED IN QUALITY. WIRELESS MIKE ENT OFF AND ON, BUT THIS DID NOT AFFECT VALUES IN THE LESSON.
SOUND VERY POOR UNTIL DIFFICULTY LOCATED AND CORRECTED.

(4) The audio system is susceptible to the special characteristics of the environment being televised and the surrounding area. Observers noted as follows:

ONE INTERVIEWER WAS DIFFICULT TO HEAR DUE TO SOFT TONES OF HIS VOICE.
SOUND DISCERNABLE, BUT SOME BACKGROUND NOISE PRESENT
MICROPHONE TOO CLOSE TO CAMERA--PICKED UP THE MOTOR NOISE.

(5) Sound quality improved with equipment modifications and experience in operation.

BETTER THAN IN PREVIOUS OBSERVATION.
SESSIONS CONTINUE TO IMPROVE; MIKES SHOULD BE SO PLACED AS TO GET MORE EVEN QUALITY OF MALE-FEMALE VOICES. (OCCURRED BEFORE DEVELOPMENT OF INDIVIDUAL MIKE SOUND CONTROL)

(6) The pickup of voices of the teacher and those pupils nearby, because of use of the wireless mike, proved to be more satisfactory than did pickup of general classroom sounds.

THOSE SOUNDS EMANATING FROM THE TEACHER WERE EXCELLENT; THOSE OF THE STUDENTS WERE NOT DISTINCT, HOWEVER.
SOUND VERY GOOD--CLASS VERY QUIET, HARD TO PICK UP CHILDREN'S VOICES, TEACHER'S VOICE CLEAR. TEACHER'S MIKE GAVE EXCELLENT CONTINUITY TO VIEWING.
CLASSROOM MIKE--NOISY.

Those observer responses which took the form of ratings rather than comments can be grouped as follows:

RESPONSE	FREQUENCY
EXCELLENT.	3
VERY GOOD.	2
CLEAR OR GOOD.	12
UNEVEN (RANGING FROM EXCELLENT TO POOR IN DIFFERING ELEMENTS OF THE AUDIO PRESENTATION).	4
SOME DEFICIENCY, BUT ADEQUATE.	4
FAIR.	1
NOT GOOD.	3

Responses by Teachers to Audio System

Teacher comments on the effectiveness of the audio system, though not universally positive, were generally stronger than those of the observers.[2] Two sub-questions concerning the audio system were posed to teacher respondents.

Sub-question #2 3:—What was the quality of the sound, in clarity, noise level, etc.?

RESPONSE	FREQUENCY
SOUND WAS VERY GOOD.	9
SOUND WAS GOOD.	9
SOUND WAS FAIR; SOME DISTORTION.	2

[2] THE IN-SERVICE EDUCATION PROJECTS FOR TEACHERS WERE STARTED LATER IN THE EXPERIMENTAL PERIOD THAN WERE A NUMBER OF OTHER PROJECTS. IT IS THOUGHT PROBABLE THAT THE IMPROVEMENTS IN EQUIPMENT AND TECHNIQUE INTRODUCED DURING THE SERIES ACCOUNT FOR THE INCREASINGLY FAVORABLE COMMENTS BY TEACHERS.

Sub-question #2.4:--Keeping in mind what you listen for during classroom visitation, did closed circuit television allow you to hear what you wanted to hear?

RESPONSE	FREQUENCY
VERY WELL; NO PROBLEM.	12
YES, IN MOST CASES.	6
INCIDENTAL NOISE CAUSED SOME INTERRUPTION.	4
SOME STUDENT'S VOICES DID NOT CARRY WELL.	3
COULD HEAR, BUT NOT IDENTIFY THE SPEAKER.	3

Comments by Closed Circuit Television Staff on Audio System

The staff of the project noted that the most difficult problem in the use of television as a tool in classroom observation is the reproduction of the classroom sounds in such a way that the viewing audience could differentiate the wanted sounds from the unwanted. It may be noted that in regular television production this does not become a problem because of the use of close mike techniques using lavalier microphones, desk mikes, and boom mikes. In a classroom these techniques are impractical, especially when the intention is to maintain a natural situation.

The Project Director's comments concerning the problem of acceptable reproduction of classroom sounds are notable:

> MICROPHONES ARE NON-SELECTIVE AND THEY RECEIVE AND AMPLIFY ALL SOUNDS EQUALLY WELL. THE RESULT IS SUCH A JUMBLE OF SOUND EMINATING FROM THE SPEAKER SYSTEM THAT THE VIEWER HAS EXTREME DIFFICULTY SORTING OUT THE DESIRED SOUNDS. A PERSON WHO IS IN THE SAME ROOM HAS NO DIFFICULTY DUE TO NATURAL AUDITORY PERCEPTION THAT ALLOWS HIM TO ORIENT HIMSELF SPATIALLY AND DIRECTIONALLY TO AN AREA. AUDITORY ATTENTION BEING DIRECTED TO A DESIRED CONVERSATION OR SOUND AUTOMATICALLY DE-EMPHASIZES AMBIENT SOUNDS.
>
> IN DESIGNING AN AUDIO SYSTEM, THE AIM IS TO CREATE A SITUATION THAT WOULD ALLOW THE VIEWERS TO AURALLY ORIENT THEMSELVES TO THE CLASSROOM WITH THE HOPE THAT THEIR AUDITORY PERCEPTION WOULD ASSIST IN SCREENING OUT UNWANTED, NATURAL BACKGROUND SOUNDS SUCH AS RUSTLING PAPERS, DESK SOUNDS, SHUFFLING OF FEET, CLOSING OF BOOKS, DROPPING OF PENCILS, AND MANY OTHER SOUNDS THAT ARE DISTURBING AND OFTEN STARTLING WHEN AMPLIFIED OVER A SINGLE, NON-DISCRIMINATORY SOUND SYSTEM. IN AN EFFORT TO SOLVE THE PROBLEM, A DUAL CHANNEL SYSTEM, BEST KNOWN AS STEREO, WAS DESIGNED. THIS PROMISED THE BEST POSSIBLE AUDITORY DISCRIMINATION SHORT OF GOING TO A FULL BINAURAL CONCEPT WITH SPECIAL EARPHONES ON ALL VIEWERS.
>
> IN OPERATION, THE DUAL CHANNEL SYSTEM PARTIALLY SOLVED THE PROBLEM OF AMBIENT NOISE AND IT ALSO ALLOWED SELECTIVE CONTROL OVER AN AREA OF THE CLASSROOM BY PERMITTING A LOWERING OF THE SOUND ON THE CHANNEL OPPOSITE THE AREA OF DESIRED SOUND PICKUP.

A THIRD AUDIO CHANNEL ORIGINATING IN A WIRELESS FM TRANSMISSION MICROPHONE CARRIED BY THE TEACHER PROVED TO BE AN ADDITIONAL, VALUABLE ELEMENT. THIS ALLOWED THE TEACHER TO BE COMPLETELY FREE FOR DESIRED MOVEMENT THROUGHOUT THE CLASSROOM WITHOUT THE LOSS OF CONTINUOUS AUDIO CONTACT. WITH THIS MICROPHONE, EVEN THE QUIET COMMENT OR CONVERSATION WAS HEARD BY THE VIEWERS. THIS CONTINUOUS CONTACT HELPED VIEWERS MAINTAIN THE LESSON CONTINUITY EVEN WHEN SOME STUDENT RESPONSES WERE MISSED.

ALTHOUGH THE THREE CHANNEL CONCEPT HELPED BY PROVING SOME OF THE DESIRED ELEMENTS OF AURAL ORIENTATION AND PROVIDED A HELPFUL FLEXIBILITY OF CONTROL, THERE WAS STILL MUCH TO BE DESIRED. THE PROBLEMS ENCOUNTERED IN OVERALL CLASSROOM SOUND PICK-UP OF INTELLIGIBLE VOICES WITHOUT UNDUE AMPLIFICATION OF BACKGROUND NOISES HAVE NOT BEEN SATISFACTORILY SOLVED.

Question #3

Was the Format and Conduct of the Viewing Sessions Conducive to Clear Observation and Good Discussion?

Question #3 concerns itself with the conduct of the viewing sessions and uses as a standard the assumed characteristics of the successful teacher in-service education session. Specific elements being investigated were: (1) orientation of teacher to the new medium, (2) leadership during viewing and discussion, and (3) presence or absence of distracting elements during the sessions.

Responses of Observers

Observer comments about the orientation function of the discussion leader were necessarily limited to the orientation accomplished at the beginning of the viewing session; observers were not in a position to appraise the orientation accomplished in the school before the session.

Reactions on the orientation of teacher/viewers are notable in their variety. Numerous comments suggested that the orientations were highly effective, others that they were deficient in one aspect or totally.

Notations representative of those which found the orientations to be successful are:

[THE LEADER] SET GROUP AT EASE AND MADE GROUP RESPONSIVE.
THE ORIENTATION WAS VERY GOOD TO HELP THE TEACHERS ACCEPT THIS PROGRAM AS AN EXCELLENT WAY TO OBSERVE TEACHING.
GOOD--BRIEF AND TO THE POINT.
EXCELLENT. TEACHERS WERE GIVEN THOROUGH EXPLANTION OF THE TELEVISION--PURPOSES IN SCHOOL DISTRICT PROGRAM.
VERY GOOD. EXPLANATION OF CHOICE OF TEACHER AND SELECTION OF SUBJECT AREA.
[THE LEADER HAS] A GOOD PLAN FOR INTRODUCTION.
VERY GOOD--POINTS OF CONCERN WERE EMPHASIZED AT BEGINNING AND AGAIN IN CLOSING WITH GOOD SUMMATION BY DISCUSSION LEADER.
DEFINED TASK WELL.

Several observers noted general adequacy of the introduction phase of the session reported upon, but with some reservations.. The specific problem of orienting the viewing teachers to both the medium and to the content of the session drew comments from three. One rater said of the orientation, (it was) good. At first the viewers were somewhat resistant; too concerned about mechanics of television.

Other observers suggested that certain unspecified factors within the context of the viewing session reduced the effectiveness of the orientation. Examples are: "Fair—in a difficult situation"; "As good as possible."

One commentator stated that his group was much more relaxed for the second viewing in the series.

The role of the discussion leader during the viewing session was one of the important questions in the minds of the project leaders. Could the leader assist the viewers by pointing up important aspects of the classroom activity, by interpreting, or by answering questions? The majority of the observers noted that the discussion leader was of notable assistance to the viewers, with a few comments to the contrary.

Representative notes of those observers commenting on the effectiveness of this technique are as follows:

> SHE (THE DISCUSSION LEADER) DROVE IN TO DISCUSS GOOD READING TECHNIQUES AS THEY OCCURRED AND WHILE FRESH ON THE MINDS OF ALL.
> THE LEADER SHOWED A KEEN AWARENESS RELATIVE TO OBSERVING AND POINTING OUT GOOD READING PROCEDURES AND CLASSROOM TECHNIQUES.
> THE DISCUSSION LEADER REACTED TO EVERY GOOD READING SITUATION.
> MOST EFFECTIVE WAS DISCUSSION WHILE PICTURE WAS ON—THIS SEEMED TO PROMOTE MORE PERTINENT DISCUSSION.

Two observers commenting negatively gave the following observations about the discussion leadership:

> SOME VIEWERS HAD PREVIOUSLY RELAYED INFORMATION THAT THE LEADER INTERRUPTED TOO OFTEN—THE SECOND VIEWINGS WERE MADE WITH A MINIMUM OF COMMENT.
> THE ATTEMPT TO EVOKE DISCUSSION DURING THE PRESENTATION OF THE PROGRAM WAS NOT EFFECTIVE.

The role of the discussion leader during the follow-up discussion period was commented upon by 13 observers, with 9 of them noting its effectiveness. Typical statements were:

> DISCUSSION LEADER SUMMARIZED THE OBSERVATION WITH THE TEACHER AND USED IT AS A STEPPING STONE TO DISCUSS OTHER GOOD TEACHING PRACTICES.
> TEACHER REACTIONS WERE THE KIND THE LEADER HOPED FOR; REACTIONS WHICH GAVE LEADER AN OPPORTUNITY TO EXPLAIN METHODS, TECHNIQUES, IN ALL PHASES OF READING.
> VERY GOOD—POINTS OF CONCERN HERE EMPHASIZED AT BEGINNING AND AGAIN IN CLOSING WITH GOOD SUMMATION BY DISCUSSION LEADER.

Four observers appraised the follow-up at least partially as ineffective, commenting as follows:

> LEAST EFFECTIVE AS A LEADERSHIP TECHNIQUE WERE EFFORTS TO STIMULATE TEACHER COMMENT AND QUESTIONS.
> VERY LITTLE REACTION BY THE TEACHER VIEWERS.
> TEACHER DISCUSSION FOLLOWING THE PRESENTATION, HOWEVER, WAS NOT, IN MY OPINION, ENCOURAGED.
> I WOULD HAVE APPRECIATED A CLEARER . . . SUMMARY OF THE PROGRAM AT THE END.

One observer, while rating the closing activity as "very good," noted a lack of time to pursue discussion.

Responses of Teachers

Six interview questions were posed for teachers, in an attempt to get their appraisal of and feelings for the format and conduct of the viewing sessions. Concerning preparation and orientation the following question was asked:

> Sub-question #3.1:—What actual preparation or orientation did you receive for your viewing sessions?

Most respondents said that the principal had explained the project in faculty meeting. The complete categorization is as follows:

RESPONSE	FREQUENCY
HEARD DISCUSSION IN STAFF MEETING.	9
EXPLAINED BY PRINCIPAL IN STAFF MEETING.	6
WORKED WITH ANOTHER TELEVISION EXPERIENCED TEACHER.	2
VERY LITTLE—ALL INFORMAL.	4
NONE-COMPLETELY COLD.	3
RECEIVED WRITTEN GENERAL OUTLINE.	1

> Sub question #3 2:--What was the role of discussion leader before viewing?

RESPONSE	FREQUENCY
PUT VIEWERS AT EASE ON EXPECTATION.	6
ORIENTATION IS IMPORTANT TO THE UNDERSTANDING OF GOALS.	5
LITTLE OR NO VALUE-COULD DO WITHOUT.	5
NO OPINION	2
GIVE DETAILS ABOUT THE CLASS.	1
EXPLANATION OF TELEVISION MECHANICS-GOOD.	1

Sub-question #3,3:—What was the role of discussion leader during viewing?

RESPONSE	FREQUENCY
TOO MUCH INTERRUPTION DURING VIEWING.	6
NO OPINION-NEITHER HELPED NOR HINDERED.	5
COULD BE HELPFUL, IF DONE WELL.	5
HELPED TO HAVE CONCEPTS POINTED OUT WHILE FRESH.	4

Sub-question #3,4:—What was the role of discussion leader after viewing?

RESPONSE	FREQUENCY
NEED MORE FOLLOW-UP DISCUSSION.	7
HELPFUL, IF THE TELEVISION TEACHER IS INVOLVED.	5
NO OPINION.	4
HELPFUL TO HAVE QUESTIONS ANSWERED.	3
FOLLOW-UP WAS JUST A RE-HASH BY DISCUSSION LEADER.	1

When asked to give suggestions for improving the viewing sessions a wide variety of suggestions appeared, with the appeal for more time for orientation and follow-up receiving the greatest interest.

Sub-question #3,5:—What would have improved the session for the viewer?

RESPONSE	FREQUENCY
MORE TIME ON ORIENTATION AND FOLLOW-UP.	5
COMMUNICATE PURPOSES TO THE STAFF.	4
NO SUGGESTIONS-WELL DONE.	3
NOT HAD PART OF SCHOOL OUT TO RECESS.	2
STAFF SHOULD BE IN ON THE PLANNING.	1
HAVE A ROOM DESIGNED FOR TELEVISION VIEWING.	1
SITUATION IMPROMPTU FOR STUDENTS.	1
IMPROVE THE SOUND SYSTEM.	1
MOVE CAMERA DIRECTION ON STUDENTS AND ACTIVITIES.	1
PROVIDE LARGER VIEWING SCREENS.	1

The related question concerning the teacher perceived distractions brought forth a variety of disturbances.

Sub-question #3.6:—What were noticeable distractions in sessions in which they were involved?

RESPONSE	FREQUENCY
NO DISTRACTIONS—ALL GOOD.	7
TOO MUCH "SMALL TALK" ON THE VIEWING ROOM-COMMENTS NOT APROPOS TO LESSON.	6
PART OF THE SCHOOL OUT TO NOISE— NOISE.	4
CAMERA DIRECTION.	3
SOUND FADING OUT AND BACKGROUND NOISE.	2
STUFFY VIEWING ROOM—POOR ENVIRONMENT.	1
NOT ABLE TO SEE THE TELEVISION SET WELL.	1

Comments of Closed Circuit Television Staff

When it was possible to carry out the full plan of orientation to the setting and equipment use, viewing the lesson with associated commentary and discussion, and follow up group discussion, the orientation was most successful. In the early stages of the project the natural curiosity associated with unique use of remote control functions and television, dominated the interest of the viewers. It was found that a thorough discussion and demonstration of this aspect of the project was essential before adequate attention could be expected to be given to the curriculum problem at hand.

It was also found through experience that the discussion leader was often criticized for commenting too frequently during the actual observation. Brief statements designed to lend support to a certain method or technique, to clarify a point, or to lend continuity was all that was necessary or desirable.

The two most important factors discovered in the important dynamics of the viewing group were continuity of group membership and a clearly identified purpose.

The best projects were those designed to help fill a universally accepted need and those where the composition of the viewing group remained essentially the same for several sessions.

QUESTION #4

Were the Closed Circuit Television Viewing Sessions a Valuable Additional Medium for In-Service Education?

In addition to concerns about specific qualities of the closed circuit television equipment and the situation in which the viewing sessions took place, data were sought on the general questions of over-all effectiveness.

Responses by Observers

The greatest number of comments by observers can be considered positive answers to Question #4. A number of these responses were general in nature, others drew attention to specific features of the closed circuit television medium which rated positive comment. Typical of the general responses are the following:

CLOSED CIRCUIT TELEVISION PROVIDED A CLOSE VIEW OF THE CLASSROOM PROGRAM—AND SHOULD BECOME AN EXCELLENT TOOL.

I FEEL THAT THIS TYPE OF PRESENTATION IS EXCELLENT.

AN EXCELLENT TRAINING TOOL.

I'VE MORE AND MORE IMPRESSED WITH THIS TELEVISION TOOL AS AN EXCELLENT ONE FOR TEACHER IN-SERVICE TRAINING.

A number of observers noted specific features or possibilities in the use of closed circuit television in teacher in-service education.

TO SHOW A MASTER TEACHER AT WORK TO A GROUP OF NEW TEACHERS IN A DISTRICT.

TO PROVE A TECHNIQUE FOR OLDER TEACHERS.

TO STIMULATE A POINT OF VIEW OF A FACULTY GROUP.

TO SHOW CHILDREN'S TELEVISION REACTIONS.

TO STIMULATE PARENTS FOR FAVORABLE REACTIONS TOWARD TEACHING; COULD BE USED DURING BOND CAMPAIGNS.

TEACHER SAT AT SMALL TABLE WITH INDIVIDUAL CHILDREN AND HAD POOR AUDIO ATTACK SKILLS. GOOD TEACHER HELP WAS SHOWN. EXCELLENT CLOSE-UP SO VIEWERS COULD SEE TEACHER HELPING STUDENT AND MAKING ENTRIES ON RECORD SHEET.

AN EXCELLENT DEVICE TO MOTIVATE TEACHERS TOWARD CERTAIN DESIRED AREAS. EVEN THOUGH TEACHER USED NOT ACCEPT ALL TECHNIQUES, SHE WILL UNCONSCIOUSLY EVALUATE ALL THE TECHNIQUES IN REFERENCE TO HER OWN.

A GREAT TOOL TO MOTIVATE DISCUSSION.

Several observers noted the responses of the teacher/viewers to the closed circuit television presentation.

THE DRAMA OF THE PERSONNEL INTERVIEW WAS QUITE APPARENT ON THE CLOSED CIRCUIT TELEVISION, WITH MANY FACIAL AND AUDIBLE REACTIONS TO THE PRESENTATION.

TEACHERS WERE UNDOUBTEDLY QUITE INTERESTED AND FAVORABLY IMPRESSED WITH THE METHODS AND TECHNIQUES PRESENTED.

EVEN THOUGH THE VIEWERS HAD SEEN THE CLOSED CIRCUIT TELEVISION IN ACTION BEFORE, THEY STILL SHOWED KEEN INTEREST IN THIS MEDIUM AS AN IN-SERVICE TRAINING TOOL.

IT WAS THE GENERAL FEELING THAT THE TEACHING TECHNIQUES USED WERE GOOD AND ACCEPTED BY THE GROUP.

Observers, when asked to specifically appraise the level of interest of the observing teachers, responded as follows:

RESPONSE	FREQUENCY
HIGH INTEREST.	10
ADEQUATE INTEREST.	5
FAIR TO POOR INTEREST.	3
NO RESPONSE.	2

Three observers, while commenting on the general quality of the closed circuit television presentation, pointed up some degree of inadequacy in the response of the viewers.

THIS OBSERVATION FURTHERED BY CONTENTION THAT CLOSED CIRCUIT TELEVISION PROVIDES AN EXCELLENT TOOL FOR CLASSROOM OBSERVATION. AS YET THE TEACHERS DO NOT FULLY APPRECIATE IT.

THE LISTENER/VIEWERS WERE QUITE ATTENTIVE FOR THE FIRST THIRTY MINUTES OR SO, BUT LOST SOME INTEREST THEREAFTER--WITH SOME RESURGENCE OF INTEREST DURING A DRAMATIC TURN OF THE INTERVIEW. THERE WERE A FEW SIDE CONVERSATIONS DURING THE LATTER PART OF THE PROGRAM.

CLOSED CIRCUIT TELEVISION PROVIDED A CLOSE VIEW OF THE CLASSROOM PROCEDURE AND SHOULD BECOME AN EXCELLENT TOOL. MY OWN OPINION--BASED UPON THESE OBSERVATIONS, IS THAT THE TEACHERS HAVE YET TO RECOGNIZE THE MAIN PURPOSE OF THE TELEVISED OBSERVATIONS AND ARE STILL THINKING OF TELEVISION AS AN ENTERTAINMENT INSTRUMENT. SUCH COMMENTS AS "LET'S SEE GEORGE AGAIN," INDICATED THE TENOR OF MY STATEMENT.

A number of observers wrote evaluative statements which directly compared closed circuit television classroom observation with direct visitation. In all cases where such comments were given they were favorable to closed circuit television. Representative statements were:

THIS PRESENTATION MADE IT POSSIBLE FOR ALL OF THE SCHOOL DISTRICT 4TH, 5TH, AND 6TH GRADE TEACHERS TO SEE A MASTER TEACHER INTRODUCE TO A CLASS HOW TO USE REFERENCE BOOKS. ONLY THROUGH THE USE OF TELEVISION WOULD THIS BE POSSIBLE. I'M SURE THAT MANY TEACHING TECHNIQUES WERE PICKED UP BY OUR TEACHING STAFF.

TO GIVE: ONE TEACHER AN OPPORTUNITY TO OBSERVE A CHILD'S REACTION AND TEACHER'S NEEDS [IN SELECTIVE READING PROGRAM].

AS A SUBSTITUTE FOR OBSERVATION OF AN EXCELLENT TEACHER BETTER THAN HAVING US SIT IN A CLASSROOM.

THIS GAVE MANY TEACHERS AN OPPORTUNITY TO OBSERVE ONE PRESENTATION ALONG WITH THEIR PRINCIPAL AND CURRICULUM CONSULTANT. IT ALSO GAVE THE OBSERVERS AN OPPORTUNITY TO ASK QUESTIONS OF EACH OTHER AND TO DISCUSS THE INSTRUCTIONAL PROGRAM AS IT WAS IN PROGRESS.

IN MY OPINION THIS METHODOLOGY FOR OBSERVATION FAR SURPASSES OTHER METHODS FOR OBSERVATION IN THE CLASSROOM. THE CLOSED CIRCUIT TELEVISION PERMITS US TO WATCH THE WORK THE CHILD IS PRODUCING. IT IS POSSIBLE TO SEE FACIAL EXPRESSION AND TO HEAR EVERY WORD THE TEACHER SAYS EVEN THOUGH SHE MAY BE WORKING WITH AN INDIVIDUAL CHILD.

MANY TIMES IN A REGULAR CLASSROOM VISIT, IT IS NOT ALWAYS POSSIBLE TO HEAR THE TEACHER WHEN SHE WORKS WITH ONE CHILD. THE CLOSED CIRCUIT TELEVISION LETS US VISIT THE CLASSROOM IN A MORE NATURAL SITUATION THAN EVER BEFORE. WE LET'S US SEE THE REAL THING. CHILDREN REACT MORE IN A NORMAL WAY. TOO OFTEN THE REGULAR CLASSROOM VISIT IS A STAGED THING. THE WHOLE PRESENTATION WAS HIGHLY SUCCESSFUL.

FROM THE OBSERVED TEACHER'S STANDPOINT, IT GIVES ONE AN OPPORTUNITY TO TEACH WITHOUT THE DISTRACTION INFLUENCED OF OBSERVERS IN THE ROOM AND PROVIDES A MORE NATURAL CLASS SITUATION.

Responses by Teachers

Of interest to the researchers was the expectations of the viewer/teachers as they approached the closed circuit television viewing session. Sub-questions #4.1 and 4.2 were posed to elicit these expectations.

Sub-question #4.1:--What were your expectations concerning the use of closed circuit television in education before you were involved as a viewer?

RESPONSE	FREQUENCY
QUESTIONED ITS EFFECTIVENESS; SKEPTICAL; PROBING.	7
CURIOUS ABOUT HOW IT WOULD BE USED.	4
NO PRE-CONCEIVED NOTIONS ABOUT CLOSED CIRCUIT TELEVISION.	4
FEAR, CAUSED BY LACK OF INFORMATION.	3
EXPECTED STUDENTS TO BE TAUGHT.	3
EXPECTED BENEFITS FOR TEACHERS; EXCITED.	2
ANXIOUS TO SEE CHILDREN AND TEACHER REACTION.	1
GOOD FOR TEACHER INTEREST---HELPFUL.	1
IMPRESSED, BUT DID NOT WANT TO BE TELEVISION TEACHER.	1

Sub-question #4.2:—How did you arrive at these expectations?

RESPONSE	FREQUENCY
INFORMAL CONVERSATIONS WITH OTHER TEACHERS.	8
EDUCATIONAL LITERATURE AND NEWSPAPERS.	5
STAFF MEETINGS.	4
COLLEGE CLASS DISCUSSION.	3
EXPERIENCE WITH STUDENTS ON COMMERCIAL TELEVISION.	2
INDIVIDUALLY--VARIOUS METHODS.	2

It may be noted that expectations were split between those reactions which were negative in tone and those which were either neutral or positive in tone. The formal indoctrination procedures of the school district were mentioned far less often than were informal contacts from a wide variety of sources.

The opinions of the teacher/respondents concerning the value of the closed circuit television viewing were especially sought. Questions were phrased in different ways in an attempt to appraise most accurately teacher opinion on the value of the experimental medium.

In Questions #4.3 and 4.4, teachers were asked to contrast the effectiveness of closed circuit television classroom viewing with the traditional classroom visit.

Sub-question #4.3:—What would you say were advantages of the closed circuit television viewing of a classroom over regular classroom visitation?

RESPONSE	FREQUENCY
INDIVIDUAL STUDENTS ARE MORE NATURAL-UNCONCERNED ABOUT VISITORS.	8
CLASS REACTIONS ARE NORMAL.	7
THERE ARE FEWER DISTRACTIONS AND INTERRUPTIONS TO CLASS.	7
MORE PEOPLE CAN VIEW AND DISCUSS AT THE SAME TIME.	4
SEE CLOSE-UPS VIEWS BETTER -BETTER DETAIL.	3
VIEWERS CAN BE MORE OBJECTIVE IN APPRAISAL.	3
STUDENTS ARE KEYED UP—TRY HARDER.	3
ESPRIT-DE-CORPS OF THE CLASS.	1
MOTIVATION FACTOR FOR STUDENTS.	1
YOU SEE MORE, BECAUSE YOUR INTEREST IS FOCUSED.	1
CAN SEE NO ADVANTAGES.	1

2

Sub-question #4.4:—What would you say were disadvantages of the closed circuit television viewing of a classroom over regular classroom visitation?

RESPONSES	FREQUENCY
MISSED THE OVER-ALL VIEW OF CLASSROOM.	5
COULD NOT SEE TEACHER-STUDENT REACTION.	3
PUT CHILDREN UNDER SOME STRAIN AND TENSION.	3
TEACHER IS VERY SELF-CONSCIOUS.	3
MISS THE CLIMATE, WARMTH AND EMPATHY.	2
NONE APPARENT.	2
CAMERA MOVED AWAY FROM INTERESTING ACTION.	1
TOO MUCH TIME ON CLOSE-UPS.	1
TOO MUCH SET-UP TIME REQUIRED.	1
NOVELTY EFFECT STILL EVIDENT.	1

Sub-question #4.5, which elicited from the respondents their impressions of the in-service education value of the sessions, brought forth a large number of positive responses.

Sub-question #4.5:—What in-service education goals do you believe were accomplished during sessions in which you were involved?

RESPONSES	FREQUENCY
SHARING OF NEW TEACHING TECHNIQUES AND METHODS	15
INSPIRATION TO DO BETTER TEACHING	6
NEW APPROACHES TO KNOWN TECHNIQUES	5
CHANCE TO OBSERVE INDIVIDUAL REACTION	2
GOOD ORIENTATION AND INSIGHT INTO NEW PROGRAMS	2
GOOD OBSERVATION OF NORMAL CLASS	1
COULD SEE GOOD CLASS DISCIPLINE	1
COULD SEE GROUP PROCESS IN TEACHING	1
SHARE COMMON GOALS	1
OCCASIONALLY LEARN SUBJECT MATTER	1
SEE TEACHER PLANNING AND PREPARATION PUT INTO PRACTICE	1

In an attempt to get teacher response on the value of the closed circuit television medium a similar and less directive question was asked. It was assumed that such an open question would elicit the teacher's most accurate feelings and reflections.

Sub-question:#4.6:—Please give your opinion of the effect of a particular viewing session, using any general statement or statements that come to mind.

RESPONSE	FREQUENCY
VERY HELPFUL AND PROFITABLE TO STAFF.	10
NEED MORE SPECIFIC STRUCTURE AND GOALS.	7
NEEDS TO BE USED MORE TO BE EFFECTIVE.	5
GOOD METHOD OF USING MASTER TEACHERS.	3
EFFECTIVE WAY TO REACH GROUPS.	3
INVOLVE MORE PEOPLE IN THE PLANNING.	2

RESPONSE	FREQUENCY
TEACHERS ARE STILL TOO SKEPTICAL.	2
HELPS DEVELOP AND FOCUS INTEREST.	2
MANY IDEAS WERE TAKEN RIGHT TO CLASSROOM.	2
PORTABILITY IS AN IMPORTANT FEATURE.	1
CHANCE FOR SELF EVALUATION.	1
TERRIFIC FOR PARENTS AND PUBLIC RELATIONS.	1
GAIN WAS VERY QUESTIONABLE.	1
TAKES TOO LONG TO SET-UP.	1

It may be noted that 23 of the responses mentioned some positive contribution of the closed circuit television session, while 18 responses either doubted the effectiveness of the session or, more typically, gave a suggestion to make the closed circuit television medium more useful.

The final question was posed to teachers in an attempt to elicit their impressions of the over-all use of television in American education. Other than a very few responses which held that educational television was not justified, the teachers stated in their own words that television has great value. A number said that the potential of the medium is still unrealized. A strong theme in the responses was to the effect that much more long-range planning, orientation of teachers to its use, and research are required.

Sub-question #4.7:--Please give your opinion of the general use of television in American education.

RESPONSE	FREQUENCY
ITS USE SHOULD BE EXPANDED.	5
NEED BETTER COMMUNICATION ABOUT ITS USE.	5
WITH EXPERIENCE IT CAN BECOME AN IMPORTANT TOOL FOR TRAINING TEACHERS.	4
NEED MORE KINDS OF EVALUATION AND RESEARCH.	4
MORE PEOPLE SHOULD BE IN ON THE PLANNING.	3
NOT YET FULLY JUSTIFIED-WASTE OF TIME AND MONEY.	3
VALUABLE IN CONJUNCTION WITH OTHER TECHNIQUES.	2
WE HAVE JUST BARELY TAPPED THE POTENTIAL.	2
NEED LONG RANGE PROGRAMS WITH STRUCTURE.	2
MEDIA CAN INTRODUCE MUCH ENRICHMENT TO THE TEACHING SITUATION NOT AVAILABLE OTHERWISE.	2
VALUABLE IF MASTER TEACHERS ARE USED.	1
IT IS WELL ACCEPTED BY TEACHERS.	1
SHOULD BE ROOMS BUILT FOR TELEVISION USE.	1

Comments of Closed Circuit Television Staff

In comparing television with any other in-service means available today, television has a distinct advantage when working with more than one observer. It provides a very effective replica of the classroom and provides the next best thing to actual experience. Through viewing angles and close-ups not available to the classroom visitor, it provides a greater feeling for the activity than being in the classroom. Through these close-ups it is easier for the viewers to grasp the more subtle and subjective elements of the teaching process.

The use of television as a classroom visitation tool has greatly extended the effectiveness of the supervisory staff. As stated by one educational consultant:

> BEFORE MIDYEAR I HAD VISITED A CLASSROOM, VIA TELEVISION, WITH EVERY ELEMENTARY TEACHER AND HAD THE OPPORTUNITY TO DISCUSS THE LESSON WITH HIM. IN OVER TEN YEARS OF SUPERVISION, INCLUDING YEARS WHEN THE DISTRICT WAS MUCH SMALLER, I HAD NEVER BEEN ABLE TO DO THAT BEFORE. I BELIEVE IT IS INVALUABLE AS AN IN-SERVICE TOOL.

Closed circuit television also finds a very useful place in specialized orientation tasks such as staff understanding of the job of the speech therapist, psychologist, pschometrist, counselor and teacher of the mentally retarded. As a remotely controlled operation it is uniquely adapted to the observation of the many private face to face relationships associated with the work of these specialists. Close observation of these interview type sessions have never been available to observers without a great element of artificiality or an extremely limited number of observers.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Background of the Project

This report describes the in-service teacher education project conducted in the Fontana (California) Unified School District, which utilized closed circuit television as a medium of classroom observation. This project was supported by the United States Office of Education under Title VII of the National Defense Education Act.

The Fontana Unified School District, located fifty miles east of Los Angeles, is one of the rapidly expanding school districts in Southern California which finds it necessary to recruit teachers from all parts of the United States.

An extensive teacher in-service education program had been found necessary to (1) build necessary continuity of the school program: and (2) continue the up-grading of instruction, using new concepts of education developed in local, regional, and national studies.

Assuming that teacher inter-visitation is a most valuable in-service experience, the district staff hypothesized that closed circuit television could make such inter-visitation more effective.

The period of development and experimentation extended from September 1959 to June 1961. The first year was devoted to (1) planning the project; (2) inspection, acquisition, installation, and testing of equipment; and (3) visits to closed circuit television installations already in operation.

During the second year the equipment was placed in operation in all grade levels of Fontana's fifteen schools (10 elementary schools, three junior high schools, one senior high school, and a special school for severely mentally retarded children) and also in a number of related projects including the Adult Education program, Parent-Teacher Association programs, and seminars from neighboring universities.

In all, the closed circuit television equipment was used in 46 in-service education sessions and 51 sessions with other related school purposes during the experimental period.

Research Procedure

The research design for the project was established to gather judgments from three groups of respondents: (1) the observers—school administrators or educational consultants assigned to observe and appraise television sessions (36 sessions were formally evaluated in this way): (2) the teachers—persons who were a part of the in-service education projects as television viewers and subjects (twenty teachers were interviewed); (3) the television project staff—comprised of three school district supervisory persons working closely with the project.

Data were gathered by means of (1) written descriptions and appraisals by observers at viewing sessions, using an observation and evaluation schedule: (2) interviews conducted throughout the district with participating teachers, using the scheduled interview procedure: and (3) formal evaluation discussions by the supervisory staff.

The investigation and report was designed to provide answers to the general question, "Is closed circuit television an effective additional medium for use in a school district in-service education program for teachers?" and four research questions: (1) "As viewed over closed circuit television did the classroom seem to be a natural setting?" (2) "Were the audio and video systems effective in providing accuracy and completeness of coverage and emotional tones or feel of the classroom?" (3) "Was the format and conduct of the viewing sessions condusive to clear observation and good discussion?" (4) "Were the closed circuit television viewing sessions a valuable additional medium for in-service education?"

Because television was used under field conditions in concert with other in-service processes, no attempt was made to measure changes in teacher behavior or acquisition of additional educational insight due to the use of closed circuit television.

It was assumed that clear observation of other teachers at work, purposeful discussion of important elements of the observation, and positive teacher and supervisor response to the sessions would be considered evidences of success of the medium.

Summary of Findings

Naturalness of Classrooms:—Considered to be of major importance to the success of the use of closed circuit television was the ability of the viewer to "see and hear" a normal classroom.

All three responding groups said that the viewed classroom was a normal classroom. In no case did the observer note any discernable tension on the part of teacher or students. Four-fifths of the teacher respondents were positive in their appraisal of the naturalness of the viewed classroom, from the standpoints of teacher reaction, student reaction, and general room environment.

The television supervisory staff was almost unanimous in its observation of the normality of the classroom noting that even such features as bulletin boards, interest centers, and teacher-pupil relationships were accurately conveyed.

Video System:—All observers rated the quality of the video system from good to excellent; there were no negative ratings.

Teachers interviewed gave a 9:1 positive reaction to the effectiveness of the video system. Included in the negative comments were suggestions for larger viewing screens and more views of the overall classroom.

The television supervisory staff held that the video system more than met expectations. Staff was of the opinion that a great deal of the success of the video system was a product of using high quality equipment. This equipment offered both ruggedness and compactness, which greatly added to the mobility and versatility of the complete television system.

Audio System:—According to the comments of the observers the audio element caused the greatest concern and distraction of any portion of the system. Approximately half of the respondents noted the audio system "poor" to "fair"; half of the observer respondents noted the audio system as "good"; there were no "excellent" ratings.

The teachers interviewed were generally more positive in their appraisal of the audio system than were the designated observers. The negative features mentioned most frequently by the teachers were distractions caused by incidental noise and some distortion of sounds.

The television supervisory staff listed the proper reproduction of classroom sounds as the major problem in classroom use of closed circuit television. Difficulty is caused by the fact that microphones are non-selective, therefore receive and amplify all sounds equally well. There is no possibility for the microphone to react as a person, namely to use natural auditory perception to orient spatially and directionally to an area.

Considerable improvement, which was reflected in the observers' and teachers' appraisals, was due to the addition of a second channel which allowed selective control over areas of the classroom, and a third channel originating in a wireless FM transmission microphone placed inconspicuously on the teacher. This continuous contact allowed viewers to maintain consistent lesson continuity.

Format of Viewing Sessions:—A major area of project evaluation dealt with organization and conduct of the in-service viewing session, including the role of the discussion leader.

The observer reactions generally noted adequacy of the orientation procedures, with some reservation. The majority felt that the discussion leader played an important role in leading discussion during the program. Only two observers gave negative comments on this phase. Of those observers commenting on follow-up directed by the discussion leader immediately after the program, most judged it to be effective.

Over half of the teacher respondents reported that lead-up discussion put viewers at ease and was important to the goals of the program. The most frequent response about discussion during the viewing was that too frequent interruption, for pointing up the observation, was an interference.

Two-fifths of the teacher respondents felt there should be more follow-up discussion after the program and about one-fourth felt that the television teacher should be brought in for the follow-up discussion.

When teachers were asked to list needed improvements in the total television program a variety were presented. The most frequently suggested improvement, made by two-fifths of the respondents was need for more extensive follow-up discussion after the viewing session.

In the request for opinions concerning noticeable distractions the majority response, two-fifths of the teacher's interviewed stated that there were no noticeable distractions. Slightly over one-fourth did mention that there was too much "side talk" in the viewing room.

The staff felt that the best projects were those where the viewing group remained the same for several observations and where the goals were clearly defined and universally accepted.

Value of Closed Circuit Television:--The observers were asked to discuss the value of television as an additional medium in in-service education. Many responses were elicited, with a majority being positive to the use of television. The consensus of observer opinion was that television not only equaled but surpassed actual visitation as a method of observation. Thirty six respondents held closed circuit television to be inferior to existing means of in-service education.

The teachers were asked to recall their expectations as viewers prior to the in-service program. One-half of the teacher respondents reported either fear--caused by lack of information--or skepticism. Only one-tenth approached the initial session expecting realistic benefits to the teachers and children. Two-fifths of the teachers reported gaining their impressions informally from other teachers, while only one-fifth reported receiving adequate information through staff meetings.

When asked for advantages of the use of television, three-fourths of the teacher group reported normal class reactions and lack of concern about visitors to be advantages, while one-fourth listed the fact that more people can view and discuss the situation at one time.

The request for opinions concerning disadvantages brought forth several ideas, each given by small numbers of teachers. The disadvantage most frequently noted, and this by 5 of the 20 teacher/respondents, was the absence of the over-all view of the classroom.

Teachers felt that many in-service education goals were accomplished during the viewing sessions. Notable were the following: (1) three-fourths recalled demonstration of new teaching techniques; (2) one-fourth stated that they received the inspiration to improve their own teaching methods; and (3) one-fourth said that they learned refinements of teaching process already used.

One-half of the teacher respondents felt the use of television in the in-service program did accomplish staff improvement. A slight majority suggested expansion of use, long range study, and wider experiences with television in education.

The staff was unanimous in its appraisal of the potential of television as an in-service medium. Noted were its advantages in bringing a common observation experience to larger groups, providing an effective replica of the classroom, and its provision of an even better viewing of the individual student than a personal visitation. It was held to be a most effective means of extending the effectiveness of a supervisory staff in the work of improving the quality of instruction.

Conclusions of the Study

This research report supports the following conclusions:

1. Closed circuit television allows the observer to see a more natural classroom than a personal room visitation, in that no unusual persons are in the classroom.

2. Television equipment in the classroom does not adversely affect students or teachers.

3. Most teachers do well as television demonstration teachers.

4 Portable television is capable of producing clear, sharp pictures of large parts of the total class, small groups, and close-up views.

5 Bulletin boards and interest centers in the room environment, as well as teacher-pupil relationships, are accurately conveyed over television.

6. The equipment proved to be extremely portable. It was taken with ease to all buildings within the school system and to other places of operation within driving distance.

7 Remote control equipment reduces classroom interruption to a minimum, yet allows flexibility of camera direction.

8. Three audio channels were found to be helpful in building an acceptable sound system.

9. Teachers held that more time should be devoted to the orientation and follow-up of the specific viewing session to increase effectiveness.

10. Although the discussion leaders' comments during the viewing emphasized pertinent aspects of the class performance, it was found that care is necessary to hold these interruptions to a minimum.

11. A majority of teachers recognize and accept television as a valuable additional medium of communication between staff members.

12. Formal indoctrination to closed circuit television procedures are necessary because the misconceptions gained in informal indoctrination would appear to cause negative attitudes to develop.

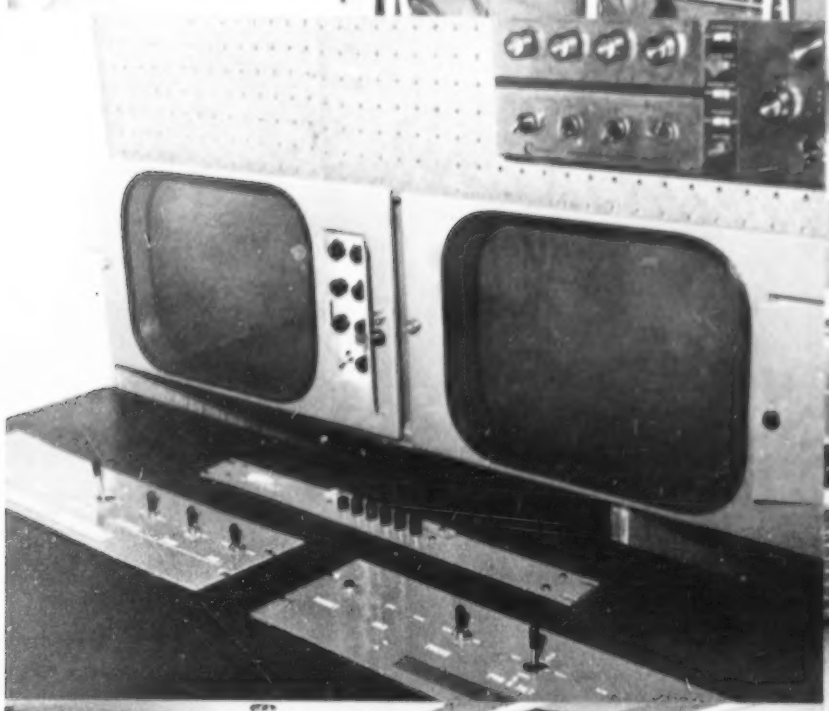
13. The system was found to be effective for viewing groups ranging from the very small to those of auditorium size.

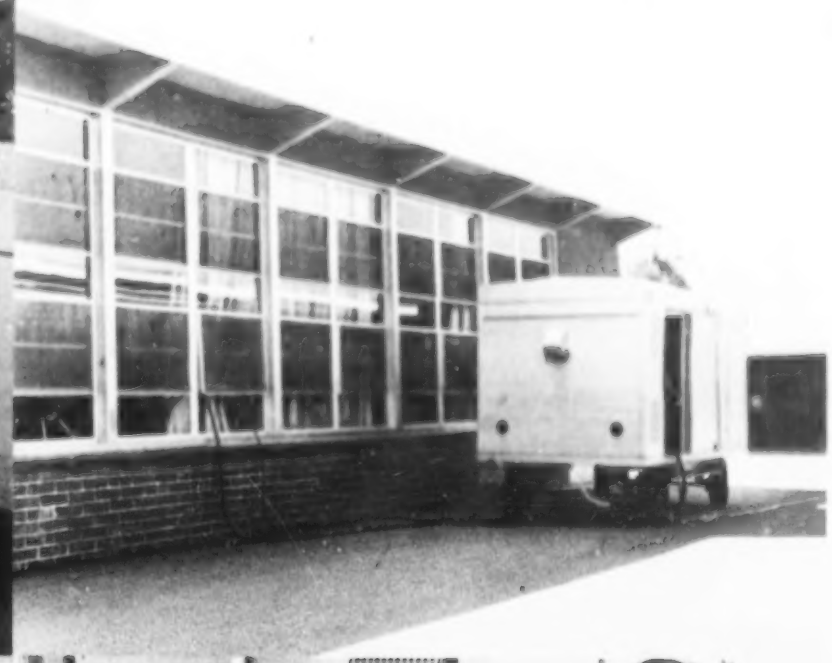
14. The initial costs of the equipment, maintenance costs, and operating personnel requirements were modest and in keeping with the usefulness of the system.

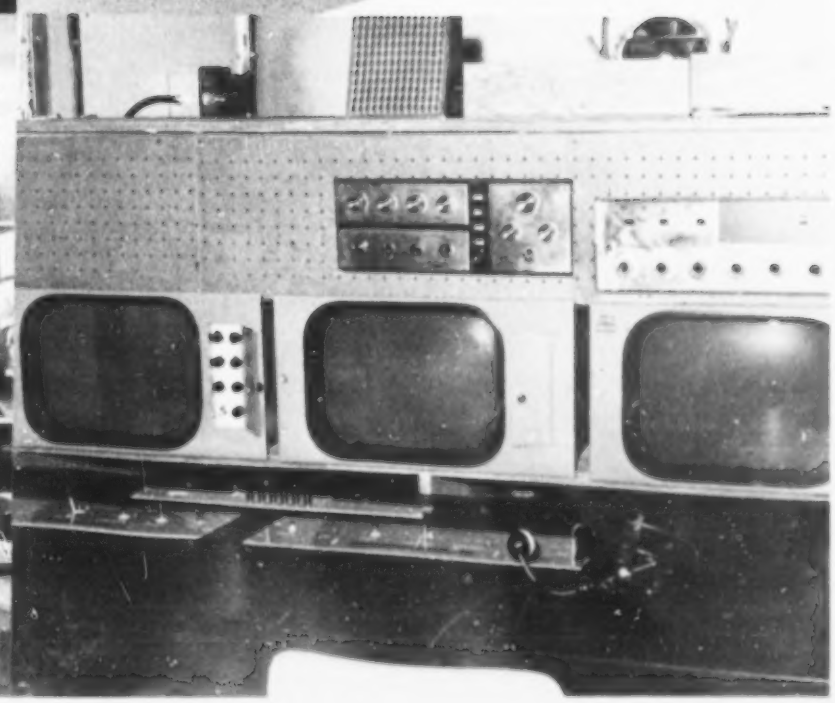
15. Criteria accepted generally for good in-service education sessions (i.e. accepted purpose for meeting, orientation, good human relationships, leadership, follow-up, et al) apply equally to in-service sessions using closed circuit television.

16. Provision should be made for expansion and further study of the effectiveness of television as a tool for observations of classroom teachers, clinicians, and other educators, administrators, and curriculum specialists.

ADVENTURES
AROUND
THE
WORLD







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APPENDIX A

Administrative and Supervisory Personnel

The following personnel served in administrative and supervisory positions during the planning and operational stages of the project.

Dr. Ferd J. Kiesel, Superintendent	9/58 - 1/60
Dr. J. Roland Ingraham, Jr., Superintendent	1/60 - 7/61
Dr. Denzil E. Widel, Assistant Superintendent-Instruction	9/58 - 7/59
Charles Palmer, Director of Personnel	Full Term
A. J. Willhoit, Administrative Assistant	Full Term
Lee Follis, Director of Instructional Material and Director of the Project	Full Term
Hugh H. Sterling, Secondary Consultant	9/58 - 7/60
Robert O. Sprague, Secondary Consultant	7/60 - 7/61
Bethene Velman, Elementary Consultant	Full Term
Eleanor Tompkins, Elementary Consultant	9/58 - 7/60
Eleanor Tompkins, Art Consultant	7/60 - 7/61
Joseph Abbey, Physical Education Consultant	7/60 - 7/61
Virgil H. Camp, Music Consultant	7/60 - 7/61
Dr. George Fox, Director of Guidance	Full Term
Dr. Russell Cassel, School Psychologist	7/59 - 7/61
W. Deane Wiley, Junior High Principal	9/58 - 7/60
W Deane Wiley, High School Principal	7/60 - 7/61
Ernest R. Camfield, High School Principal	9/58 - 7/60
Ernest R. Camfield, Assistant Superintendent-Special Services	7/60 - 7/61
W. Lloyd Johns, Junior High Principal	Full Term
Nils Stamps, Elementary Principal	9/58 - 7/60
Nils Stamps, Junior High Principal	7/60 - 7/61
Howard Sagehorn, Junior High Principal	7/60 - 7/61
Randolph Saugstad, Elementary Principal	Full Term
Walter Stoltze, Elementary Principal	Full Term
Randall Canfield, Elementary Principal	Full Term
Dorman Crees, Elementary Principal	Full Term
Gertrude Ferguson, Elementary Principal	Full Term
Margaret Hackler, Elementary Principal	9/59 - 7/61
Talmadge Herbert, Elementary Principal	Full Term
Jearl Lisonbee, Elementary Principal	Full Term
John Price, Elementary Principal	9/60 - 7/61
F. Gail Squires, Elementary Principal	Full Term

A consultant in research, Dr. Arthur R. King, Jr., Associate Professor of Education, Claremont Graduate School, was engaged to assist in the development of the research design of the project.

APPENDIX B

EQUIPMENT LIST

Origination Equipment:

2-General Electric TE9B completely transistorized vidicon cameras, 5½" diameter-11" long-one equipped with 4 lens turret and internal optical focus mechanism.	$6500
Turret Mechanism	495
Focus Mechanism	100
1-Mark 4 Zoomar Lens-for use on the camera not equipped with turret. -variable focal length from 17mm to 70mm (25 to 105mm with range extender.) -electrical controls include focal length, focus, and iris	1350
6-Lenses 1/2" to 9" focal lengths	850
2-Pelco PT100SP Pan and Tilt Units -electrical controls for remote control of Pan and Tilt functions.	950
2-Majestic Tripods-Heavy Duty-Elevator Type	200
1-Sony CRT 4 FM Wireless Microphone	250
2-Electrovoice #644 "Sound Spot" Microphones	140

Control Equipment

3-Conrac CLB14 14" Monitors -one for each camera chain -one for line monitor	975
1-Dynair VS6A Video Switcher-Push Button Type	110
2-Pan and Tilt and Cameral Control Panels (Price included in Pan and Tilt Units)	
1-Citation I Dual Channel Preamplifier	175
2-Heath 55 Watt Amplifiers	140
1-Bogen Amplifier	150
1-Intercom Power Supply-District Built	
2-Intercom Headsets-WE-AW 52	70
1-Van Trailer-Surplus Property-Houses the Control Equipment	75
1-Panel Truck-Surplus Property -for movement of control van and hauling monitors and stands.	85

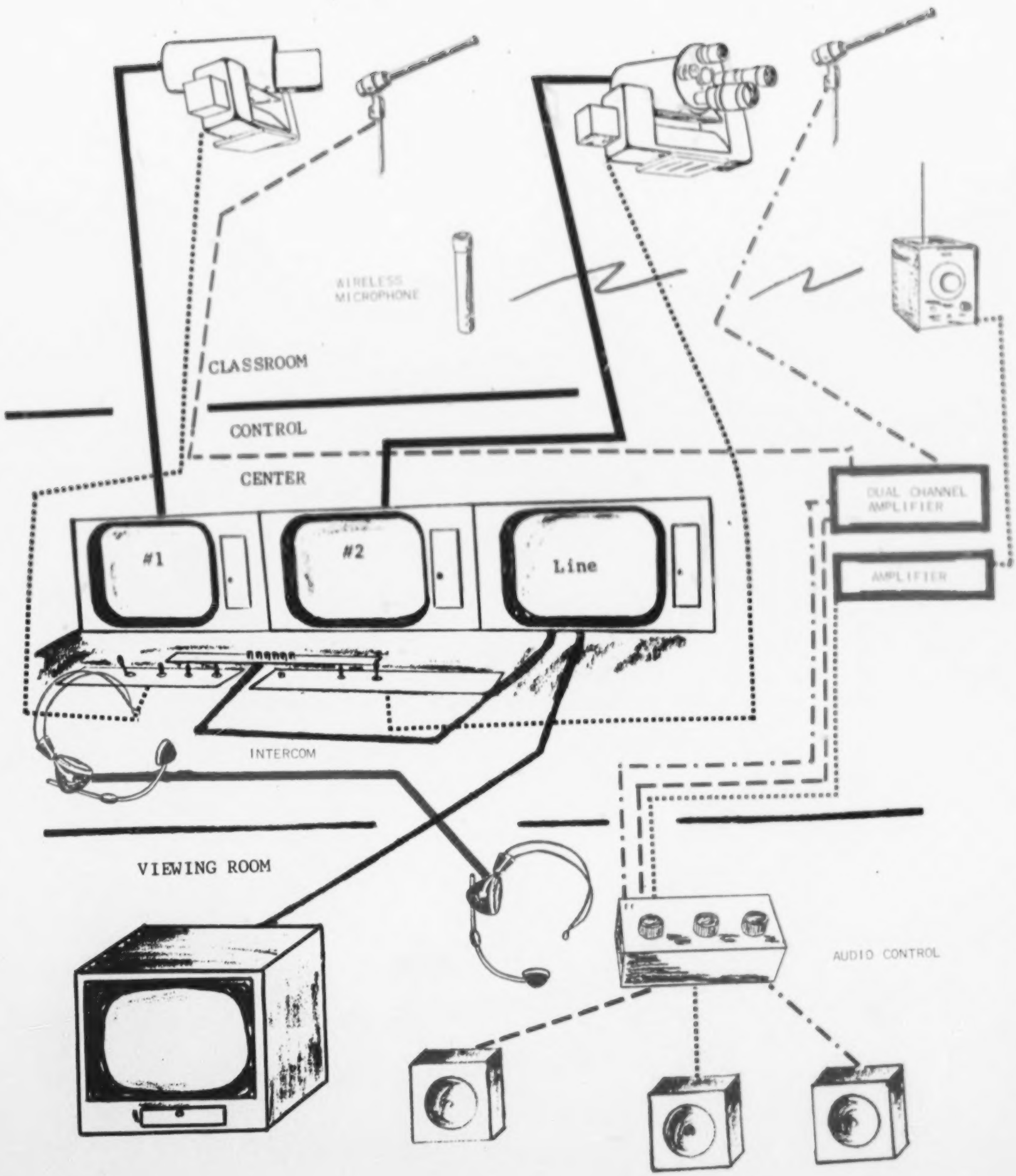
Viewing Room Equipment

4-Conrac CFB 21-21" Monitors	1520
4-Colson Monitor Stands-5" Casters	160
3-Speakers 8" in simple box enclosures	120
1-Audio Control Center-district designed and built for control of three audio channels at viewing position.	
1-Intercom Headset-WE-AW 52	35

General Equipment Expenses

Renovate and equip trailer and truck	505
Coaxial cable 1000 ft. RG11/U @ 206/ft.	200
Control Cable 500 ft. 18 conductro 7139880 @ 306/ft.	150
	$15,305

APPENDIX C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CLASSROOM
CONTROL
CENTER
#1
#2
Line
DUAL CHANNEL AMPLIFIER
AMPLIFIER
INTERCOM
VIEWING ROOM
AUDIO CONTROL

APPENDIX D

OFFICE OF EDUCATION SUPPORT

Salaries

Project Director	1/2 time	21 months	$8750
Technical Assistant	1/2 time	12 months	2250
Clerk-Typist	Full time	12 months	3600
Research Coordinator			2000
		Total Salaries	$16,600

Equipment

Twenty per cent of undepreciated value allowed each year.

First Year ($15,000 value)	$3000
Second Year ($12,000 value)	2400
Total Equipment Allowance	$5,400

Travel

Project Director	$ 500

Supplies and Materials	$ 350
Total Federal Support	$22,850

All indirect costs borne by school district.

PRECEDING PAGES MISSING

APPENDIX F

PROJECT LEADERS EVALUATION PACKET

FONTANA UNIFIED SCHOOL DISTRICT
Department of Instructional Material
9680 Citrus Ave.
Fontana, California
October 31,1960

TO: CCTV Project Chairman

FROM: Lee Pollis, Director of Instructional Material

Please fill out this form carefully and send it to me within a week of the observation. This information is vital to the evaluation of our project.

Page 1 Is a general record of the observation.

Page 2 Is your evaluation of specific items.

Page 3 Is for your general evaluation of this observation.

NOTE: This is to be in terms of this specific observation. Be objective.

Form 101 Please take responsibility for the completion of this roster and attach it to Form 102

Form 104 You are urged to invite anyone connected with the observations to complete this general evaluation,return to you or directly to my office. Your use of this Form 104 for a general evaluation will also be appreciated.

CCTV
Form 101
(Append to Form 102 when complete)

Fontana Unified School District

Planning Sheet for CCTV Observation

(To be completed by Project Chairman)

1. Name of Project

2. Sequence number of this observation_____ 3. Date_____

4. Setting (viewed and viewing)

5. Goals for observation

6. Prior experience of this class and teacher (or other) in CCTV

7. Other person(s) to be in classroom, including purpose

8. Brief description of preparation of teacher and class for event

9. Name of discussion leader_____

(Experience and preparation of discussion leader)

10. Observers(s)

CCTV
Form 103
Page 2

EVALUATION OF OBSERVATION

A. Technical efficiency:

1. Clarity of vision

2. Clarity of sound

3. Camera direction

4. Camera placement

5. Other

B. Response by viewers:

1. Observed intensity of interest

2. Quality of comments and questions

3. Other

C. Effectiveness of leader:

1. How effective was orientation and initiation?

2. What were the most effective leadership techniques?

3. What were the least effective leadership techniques?

4. Other

CCTV
Form 102
Page 3

D. General evaluation
(Your evaluation of this medium as a training tool, based on this particular use. Did it adequately present the classroom program for your discussion purposes? What advantages and disadvantages were made apparent during this observation?)

APPENDIX G

GENERAL EVALUATION AND ROSTER OF VIEWERS

Pontoon Unified School District

EVALUATION REPORT - GENERAL

Any reactions as to value of CCTV as a tool to an overall training will be gladly received. Please give us your honest evaluation. Identify yourself only as to grade into. Participating viewers, non participating viewers, demonstration teacher, principal etc.

Pontoon Unified School District

Roster of viewers for CCTV observations

To be completed at the direction of the project chairman

A. Project

B. Sequence Number of This Observation_____ C. Date_____

D. Roster

Name	School	Grade	Part

E. Means by which observers will be available (free period, employed substitute, covered by other teachers, etc.)

F. Notes

APPENDIX H

[redacted]

A. Larger Areas

Part I - Personal Information

1. Name_____(School)_____
2. Grade (area) for I subject area_____S A O
3. Years experience_____S T O
4. Have you ever completed in an in-service education program using television?_____
   How many sessions?_____

Part II - Television Viewing

5. Did the classroom seem to be a natural setting? (Elaborate)

6. (a) Did the reaction of the students seem to be affected?_____
   If so, how?

   (b) Did the action of the teacher seem to be affected?_____
   If so, how?

7. What was the quality of the picture? (brightness - detail - etc.)

8. Could you see what you wanted to see? (clearly)

9. What was the quality of the sound? (clarity - noise level - etc.)

10. Could you hear what you wanted to hear? (clearly)

Part IV - Program Format

11. What preparation did you receive for the viewing session?

12. (a) What was the value of the Discussion Leader before the viewing session?

   (b) Helpful

   (c) Other?

13. What were the most noticeable distractions? (physical and mechanical)

14. What could have been done to improve the viewing session?

Part V - Evaluation of Closed Circuit Television

15. (a) What were your expectations before you were involved as a viewer?

   (b) Has did you evolve at that?

16. What goals usually reached in in-service programs could be realized by viewing classrooms over television?

17. What was your opinion of the overall effort? (helpful - viewing time - general environment.

18. What were the most significant advantages of viewing a class over television rather than going into the classroom?

19. What were the most significant disadvantages of viewing a class over television, rather than going into the classroom?

20. All things considered, what is your opinion of the value of closed circuit television in in-service education? (value judgment)